
EXHIBIT H

Claim 1	
<p>A Web-based management engine for a network entity, comprising:</p>	<p>Ruckus systems, for example the Ruckus ZoneDirector (including the ZoneDirector 1200, 3000, and 5000) and/or ZoneDirector in conjunction with Ruckus access points, provide a Web-based management engine for a network entity (e.g., a ZoneDirector device and/or a Ruckus access point). The ZoneDirector utilizes a web-based management engine.</p> <div data-bbox="465 432 1750 1068" style="border: 1px solid black; padding: 10px;"> <p>Overview of ZoneDirector</p> <p><u>Ruckus Networks ZoneDirector serves as a central control system for Ruckus Wi-Fi Access Points (APs). ZoneDirector provides unified AP configuration and updates, wireless LAN security control, RF management, and automatic coordination of Ethernet-connected and mesh-connected APs.</u></p> <p>Using ZoneDirector in combination with Ruckus APs allows deployment of a Smart Mesh network, to extend wireless coverage throughout a location without having to physically connect each AP to Ethernet.</p> <p>In a Smart Mesh network, the APs form a wireless mesh topology to route client traffic between any member of the mesh and the wired network. Meshing significantly reduces the cost and time requirements of deploying an enterprise-class wireless LAN (WLAN), in addition to providing much greater flexibility in AP placement.</p> <p>ZoneDirector also integrates network monitoring, sophisticated user access controls, Wi-Fi performance diagnostic tools, highly configurable guest access features and advanced security features within a single system.</p> <p>User authentication can be accomplished using an internal user database, or forwarded to an external Authentication, Authorization and Accounting (AAA) server such as RADIUS or Active Directory. Once users are authenticated, client traffic is not required to pass through ZoneDirector, thereby eliminating bottlenecks when higher speed Wi-Fi technologies - such as 802.11ac - are used.</p> <p><u>This user guide provides complete instructions for using the ZoneDirector web-based user interface. With the web interface, you can customize and manage all aspects of ZoneDirector and your Ruckus Networks Wi-Fi deployment.</u></p> </div> <p>Source: ZoneDirector 10.2 User Guide, p. 17.</p>

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<p>A Web-based management engine for a network entity, comprising:</p>	<p>As another example, the excerpt below show systems with the ZoneDirector 5000 providing a Web-based management engine for a network entity.</p> <div data-bbox="467 368 1348 899"> <p>Ruckus ZoneDirector 5000 Overview:</p> <p>The most affordable and scalable high-end Smart WLAN controller in its class</p> <p>The ZoneDirector 5000 (ZD5000) is the industry's first controller-based system that can be flexibly deployed either in-line, or out of the data path, supporting up to 20,000 clients, 1,000 access points (APs) and 2048 wireless LANs (WLANs) within a single, easy-to-use platform. If you don't believe us, compare it for yourself against the alternatives.</p> <p>With 6x the processing power and twice the capacity and redundancy of previous ZoneDirectors, the ZD5000 is perfect for large-scale wireless environments such as hotels, schools, hospitals and managed service environments. With a lifetime warranty, the ZD5000 is the first Smart WLAN platform to combine power, simplicity and scalability into a single, affordable system.</p> <p>Highly resilient with dual/hot-swappable AC/DC power supplies and fans, the ZD5000 integrates the same ZoneFlex Smart/OS software as other ZoneDirector platforms, supporting advanced features such as meshing, hot spot authentication, guest networking and dynamic Wi-Fi security at no additional cost.</p> <p>The Ruckus Networks ZoneDirector™ 5000 (ZD5000) is the first WLAN controller to uniquely combine power, simplicity and scalability into an affordable system. Supporting up to 20,000 clients and 2048 WLANs per device, the ZD5000 manages up to 1000 ZoneFlex Smart Wi-Fi access points from a single location.</p> <p>Unlike conventional wireless LAN systems that are costly, complex and cumbersome to deploy, the ZD5000 is designed for simplicity and ease of use. It's ideal for any large-scale enterprise requiring a high-performance wireless LAN that can be easily deployed and managed.</p> <p>The ZD5000 integrates the Ruckus Smart/OS application engine that delivers advanced features such as smart wireless meshing, high availability, hot spot authentication, elegant guest networking and dynamic Wi-Fi security. Deployed and operated by non-wireless experts and installed quickly and easily, with the ZD5000, any organization with limited IT staff and budget can create a robust and secure multimedia WLAN in a matter of minutes.</p> <p>The ZD5000 easily integrates with network, security and authentication infrastructure already in place and is easily configured through a point-and-click web wizard. Ruckus ZoneFlex APs automatically discover and are configured by the ZoneDirector. Redundant and secure, the ZD5000 provides WLAN-wide network, security, RF and location management within a single, easy-to-use and affordable WLAN system.</p> </div> <div data-bbox="1381 368 1831 531"> <p>Super Simple Management</p> <ul style="list-style-type: none"> • Graphic and Web 2.0 intuitive user interface • HTTP and HTTPS/SSL connections • Full CLI support • Manageable by Ruckus FlexMaster system • SNMP v1/v2c/v3, Telnet/SSHv2 support </div> <div data-bbox="467 1013 1742 1128"> <p>IT lite deployment in 5 minutes, simple to use and manage</p> <p>Web-based configuration wizard configures an entire WLAN in minutes. ZoneFlex APs auto-discover the ZoneDirector. Centralized management and automatic, real-time optimization of entire WLAN</p> </div> <p>Source: http://www.ruckussecurity.com/ZoneDirector-5000.asp</p>

Claim 1

A Web-based management engine for a network entity, comprising:

Below is an example of the ZoneDirector web-based interface.

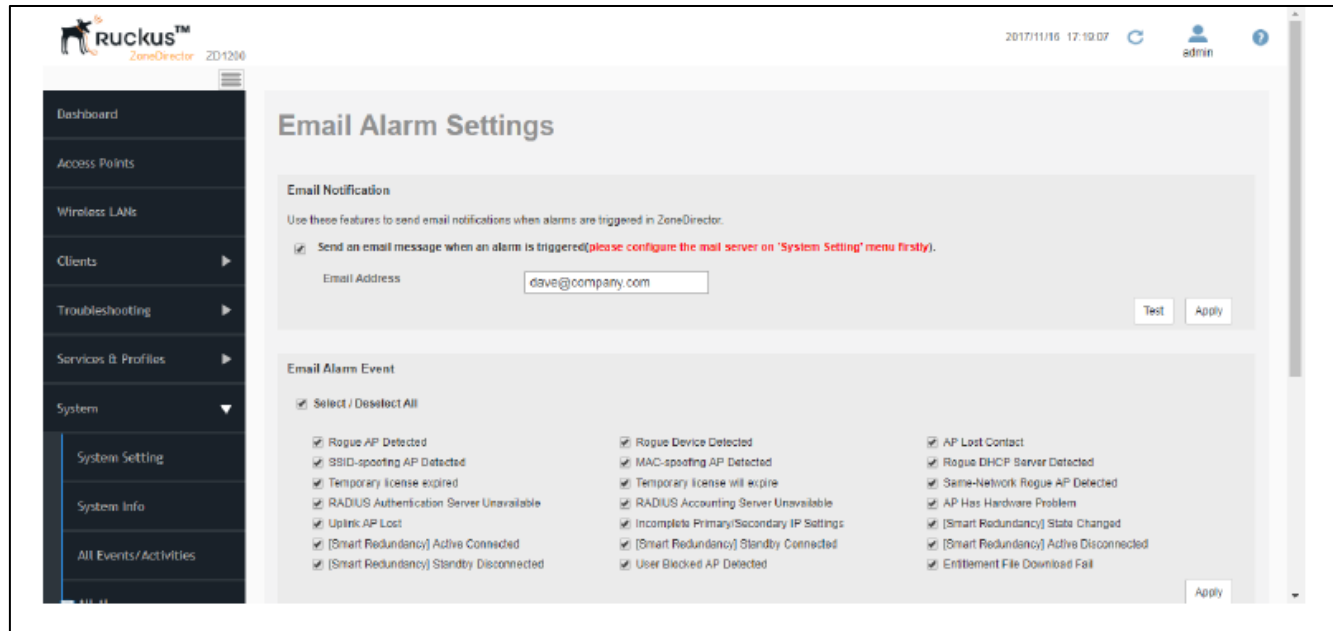
The screenshot displays the Ruckus ZoneDirector web-based interface. The top navigation bar includes the Ruckus logo, the title "ZoneDirector - ruckus", and a status bar showing the date and time (2015/06/25 20:27:21) along with links for Help, Toolbox, and Log Out (admin). Below the navigation bar, there are tabs for Dashboard, Monitor, Configure, and Administer. The left sidebar contains a list of system components: System, WLANs, Access Points, Access Control, Maps, Roles, Users, Guest Access, Hotspot Services, Hotspot 2.0 Services, Mesh, AAA Servers, DHCP Relay, Alarm Settings, Services, WIPS, and Certificate. The main content area is divided into several sections:

- WLANs**: This section provides a table listing current WLANs and offers options to create new WLANs or edit existing ones. It includes a search bar and filters for "Include all terms" and "Include any of these terms".
- WLAN Groups**: This section provides a table listing current WLAN groups and offers options to create new WLAN groups or edit existing ones. It includes a search bar and filters for "Include all terms" and "Include any of these terms".
- Zero-IT Activation**: This section explains the Zero-IT Activation process, which simplifies the configuration of users' wireless settings. It includes an activation URL: <http://zddemo.ruckuswireless.com/activate> and an authentication server dropdown menu.
- Dynamic PSK**: This section explains the Dynamic PSK feature, which assigns a unique pre-shared key (PSK) to each user when they activate their wireless access. It includes a PSK Expiration dropdown menu set to "Unlimited".

Claim 1

A Web-based management engine for a network entity, comprising:

Below is yet another example of the ZoneDirector web-based interface.



Source: ZoneDirector 10.2 User Guide, p. 17.

Claim 1	
<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>The Ruckus systems utilize an intelligent agent that is used to obtain information about at least one operational parameter of the network entity and/or modify its behavior. For example, the ZoneDirector includes an internal SNMP agent, which is an intelligent agent.</p> <div data-bbox="494 622 1727 714"><p><u>Enabling the SNMP Agent</u></p><p>The procedure for enabling <u>ZoneDirector's internal SNMP agent</u> depends on whether your network is using SNMPv2 or SNMPv3.</p></div> <p>Source: ZoneDirector 10.2 User Guide, p. 294.</p>

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<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>Additionally, or alternatively, Ruckus's ZoneDirector-managed network entities, including Ruckus wireless Access Points are configured to be managed using the ZoneDirector.</p> <div data-bbox="506 428 1723 1058" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <h3 style="color: #D95319; margin: 0;">Overview of ZoneDirector</h3> <p>Ruckus Networks ZoneDirector serves as a central control system for Ruckus Wi-Fi Access Points (APs). ZoneDirector provides unified AP configuration and updates, wireless LAN security control, RF management, and automatic coordination of Ethernet-connected and mesh-connected APs.</p> <p>Using ZoneDirector in combination with Ruckus APs allows deployment of a Smart Mesh network, to extend wireless coverage throughout a location without having to physically connect each AP to Ethernet.</p> <p>In a Smart Mesh network, the APs form a wireless mesh topology to route client traffic between any member of the mesh and the wired network. Meshing significantly reduces the cost and time requirements of deploying an enterprise-class wireless LAN (WLAN), in addition to providing much greater flexibility in AP placement.</p> <p><u>ZoneDirector also integrates network monitoring, sophisticated user access controls, Wi-Fi performance diagnostic tools, highly configurable guest access features and advanced security features within a single system.</u></p> <p>User authentication can be accomplished using an internal user database, or forwarded to an external Authentication, Authorization and Accounting (AAA) server such as RADIUS or Active Directory. Once users are authenticated, client traffic is not required to pass through ZoneDirector, thereby eliminating bottlenecks when higher speed Wi-Fi technologies - such as 802.11ac - are used.</p> <p>This user guide provides complete instructions for using the ZoneDirector web-based user interface. With the web interface, you can customize and manage all aspects of ZoneDirector and your Ruckus Networks Wi-Fi deployment.</p> </div> <p>Source: ZoneDirector 10.2 User Guide, p. 17.</p>

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<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>The ZoneDirector-managed network entities are configured to communicate using SNMP. Thus, the entities include an SNMP agent, which is an intelligent agent.</p> <div data-bbox="510 638 1796 743"><p>3. When the SNMPv2 Agent is enabled, the Inherit SNMPv2 for APs option appears. This option is enabled by default. <u>Disabling it allows you to disable SNMP traps on all APs.</u></p></div> <p>Source: ZoneDirector 10.2 User Guide, p. 295.</p>

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<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>Network entities that are configured to be managed by SmartZone include the following examples:</p> <table border="0"> <tr> <td>Ruckus C110</td><td>http://www.ruckussecurity.com/ZoneFlex-C110.asp</td></tr> <tr> <td>Ruckus E510</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus H320</td><td>http://www.ruckussecurity.com/ZoneFlex-H320.asp</td></tr> <tr> <td>Ruckus H510</td><td>http://www.ruckussecurity.com/ZoneFlex-H510.asp</td></tr> <tr> <td>Ruckus R310</td><td>http://www.ruckussecurity.com/ZoneFlex-R310.asp</td></tr> <tr> <td>Ruckus R320</td><td>http://www.ruckussecurity.com/ZoneFlex-R310.asp</td></tr> <tr> <td>Ruckus 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<p>https://www.ruckussecurity.com/ZoneFlex-R850.asp?utm_term=ruckus%20r850&utm_campaign=Ruckus+Wireless+*168&utm_source=adwords&utm_medium=ppc&hsa_tgt=kwd-919016351974&hsa_grp=102377129279&hsa_src=g&hsa_net=adwords&hsa_mt=e&hsa_ver=3&hsa_ad=444199499007&hsa_acc=9041622380&hsa_kw=ruckus%20r850&hsa_cam=36080881&gclid=CjwKCAjwmMX4BRAAEiAw-zM4JhZKNxwNJuGSogdXlpOxENOR61iwlzAltaA6mgD4iNeEePnhc3gQChoC5EYQAvD_BwE</p> <table border="0"> <tr> <td>Ruckus R850</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus T310</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus T610</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus T610S</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus T710</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus T750</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus ZoneFlex 7781</td><td>http://www.ruckussecurity.com/datasheets/799-629-ds-ruckus-7781-cm.pdf</td></tr> <tr> <td>Ruckus ZoneFlex H500</td><td>http://www.ruckussecurity.com/ZoneFlex-H500.asp</td></tr> <tr> <td>Ruckus ZoneFlex R300</td><td>https://www.ruckussecurity.com/ZoneFlex-R300.asp</td></tr> <tr> <td>Ruckus ZoneFlex R500</td><td>http://www.ruckussecurity.com/ZoneFlex-R500.asp</td></tr> <tr> <td>Ruckus ZoneFlex R600</td><td>http://www.ruckussecurity.com/ZoneFlex-R600.asp</td></tr> </table> <p>http://www.ruckussecurity.com/ZoneFlex-R700.asp?utm_term=zoneflex%20r700&utm_campaign=Ruckus+Wireless+*168&utm_source=adwords&utm_medium=ppc&hsa_tgt=kwd-64161560800&hsa_grp=11096537101&hsa_src=g&hsa_net=adwords&hsa_mt=e&hsa_ver=3&hsa_ad=39171980101&hsa_acc=9041622380&hsa_kw=zoneflex%20r700&hsa_cam=36080881&gclid=CjwKCAjwmMX4BRAAEiAw-zM4JvP1WQgWYfiDxpW-DJJaL3uKMf-ifirz71qepcWRgXOon7CLXL9EGxoCstgQAvD_BwE</p> <table border="0"> <tr> <td>Ruckus ZoneFlex R700</td><td>http://www.ruckussecurity.com/datasheets/ds-zoneflex-t300-series.pdf</td></tr> <tr> <td>Ruckus ZoneFlex T300</td><td></td></tr> </table>	Ruckus C110	http://www.ruckussecurity.com/ZoneFlex-C110.asp	Ruckus E510	http://www.ruckussecurity.com/ZoneFlex-E510.asp	Ruckus H320	http://www.ruckussecurity.com/ZoneFlex-H320.asp	Ruckus H510	http://www.ruckussecurity.com/ZoneFlex-H510.asp	Ruckus R310	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R320	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R510	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R550	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R610	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R650	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R710	http://www.ruckussecurity.com/ZoneFlex-R750.asp	Ruckus R720	http://www.ruckussecurity.com/ZoneFlex-R750.asp	Ruckus R730	http://www.ruckussecurity.com/ZoneFlex-R750.asp	Ruckus R750	http://www.ruckussecurity.com/ZoneFlex-R750.asp	Ruckus 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<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>The intelligent agent is used to obtain information about at least one operational parameter of the network entity and modify its behavior. For example, the SNMP agent uses the SNMP protocol for monitoring and management of the network entity (e.g., Ruckus's ZoneDirector controllers and access points). In an SNMP based management system, an SNMP agent is present on a managed network entity to convey device data within the system. Further, the intelligent agent interacts with the network entity in accordance with a predetermined data structure, such data structured according to the management information base ("MIB") specifications of the SNMP protocol (i.e., "MIBs").</p> <div data-bbox="465 544 1750 1182" style="border: 1px solid black; padding: 10px;"> <h3 style="color: #D9534F; margin: 0;">Overview of ZoneDirector</h3> <p><u>Ruckus Networks ZoneDirector serves as a central control system for Ruckus Wi-Fi Access Points (APs). ZoneDirector provides unified AP configuration and updates, wireless LAN security control, RF management, and automatic coordination of Ethernet-connected and mesh-connected APs.</u></p> <p>Using ZoneDirector in combination with Ruckus APs allows deployment of a Smart Mesh network, to extend wireless coverage throughout a location without having to physically connect each AP to Ethernet.</p> <p>In a Smart Mesh network, the APs form a wireless mesh topology to route client traffic between any member of the mesh and the wired network. Meshing significantly reduces the cost and time requirements of deploying an enterprise-class wireless LAN (WLAN), in addition to providing much greater flexibility in AP placement.</p> <p>ZoneDirector also integrates network monitoring, sophisticated user access controls, Wi-Fi performance diagnostic tools, highly configurable guest access features and advanced security features within a single system.</p> <p>User authentication can be accomplished using an internal user database, or forwarded to an external Authentication, Authorization and Accounting (AAA) server such as RADIUS or Active Directory. Once users are authenticated, client traffic is not required to pass through ZoneDirector, thereby eliminating bottlenecks when higher speed Wi-Fi technologies - such as 802.11ac - are used.</p> <p>This user guide provides complete instructions for using the ZoneDirector web-based user interface. With the web interface, you can customize and manage all aspects of ZoneDirector and your Ruckus Networks Wi-Fi deployment.</p> </div> <p>Source: ZoneDirector 10.2 User Guide, p. 17.</p>

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<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>Below shows examples of the Ruckus system obtaining information from and/or modifying the behavior of a network entity.</p> <div data-bbox="484 548 1785 769"><p>Configuring SNMP Support</p><p>ZoneDirector provides support for Simple Network Management Protocol (SNMP v2 and v3), which allows you to <u>query ZoneDirector information such as system status, WLAN list, AP list, and clients list, and to set a number of system settings using a Network Management System (NMS) or SNMP MIB browser.</u></p><p><u>You can also enable SNMP traps to receive immediate notifications for possible AP and client issues.</u></p></div> <p>ZoneDirector User Guide, p. 294</p>

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<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>The excerpt below shows another example of the intelligent agent obtaining information about at least one operational parameter of the network entity (e.g., to display on the web interface) and modifying the behavior of the network entity (e.g., by enabling/disabling an SNMP trap or configuring other SNMP settings).</p> <div data-bbox="506 425 1758 828" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Introduction</p> <p>This <i>Reference Guide</i> provides information on the Ruckus Wireless ZoneDirector Simple Network Management Protocol (SNMP) Management Information Base objects (MIBs) that ZoneDirector supports.</p> <p>NOTE For information on how to <u>enable SNMP trap delivery and configure other SNMP settings using the ZoneDirector web interface</u>, refer to the <i>ZoneDirector User Guide</i>.</p> <p>Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the Ruckus Networks support site: https://support.ruckuswireless.com/documents.</p> </div> <p>Source: ZoneDirector 10.2 SNMP Reference Guide, p. 13.</p>

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an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;

The intelligent agent interacts with the network entity in accordance with a predetermined data structure (e.g., a MIB data structure).

Standard MIBs

• Standard MIBs That ZoneDirector Supports..... 15

Standard MIBs That ZoneDirector Supports

ZoneDirector supports standard SNMPv2 MIB objects as defined in RFC 1213.

The following table lists the SNMP standard MIBs that ZoneDirector supports:

Name	OID
system	1.3.6.1.2.1.1
interfaces	1.3.6.1.2.1.2
ip	1.3.6.1.2.1.4
ipAddrTable	1.3.6.1.2.1.4.20
ipRouteTable	1.3.6.1.2.1.4.21
ipForward	1.3.6.1.2.1.4.24
ipv6IpForwarding	1.3.6.1.2.1.4.25
icmp	1.3.6.1.2.1.5
tcp	1.3.6.1.2.1.6
udp	1.3.6.1.2.1.7
snmp	1.3.6.1.2.1.11

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 15.

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an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;

Below is a further example of the intelligent agent interacting with the network entity in accordance with a MIB data structure.

Event MIBs Overview

This section describes ZoneDirector and AP events and traps that are triggered when an event occurs, along with possible causes for the event and recommended actions to take (if any).

The MIBs described in this section are contained in the RUCKUS-ZD-EVENT-MIB.txt file. This section is divided into the following subsections:

- [ZoneDirector Event MIB Group](#) on page 17
- [Ruckus ZD Event Objects](#) on page 42
- [AP and Client Event MIB Group](#) on page 46
- [ZD Event Trap Switch Commands](#) on page 48

ZoneDirector Event MIB Group

The ruckusZDEventTraps MIB tree contains events that trigger SNMP traps to be delivered to an SNMP receiver.

ruckusZDEventAPJoinTrap

TABLE 2 ruckusZDEventAPJoinTrap

Name	ruckusZDEventAPJoinTrap
OID	1.3.6.1.4.1.25053.2.2.1.1
Severity	Minor
Status	current
Objects	ruckusZDEventSerial
	ruckusZDEventNEID
	ruckusZDEventSeverity
	ruckusZDEventType
	ruckusZDEventTime
	ruckusZDEventStatus
	ruckusZDEventTitle
	ruckusZDEventAPMacAddr
Description	Trigger when there is an AP join event. The AP's MAC address is enclosed.
Recommended Actions	None

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 17.

Claim 1	
<p>a data store storing data relating to a procedure for managing the at least one operational parameter of the network entity;</p>	<p>The Ruckus system utilizes a data store (e.g., memory) storing data relating to a procedure for managing the at least one operational parameter of the network (for example, data stored in the form of MIBs).</p> <div data-bbox="483 525 1734 733" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>ZoneDirector System MIBs Overview</p> <p>The objects contained in the RUCKUS-ZD-SYSTEM-MIB.txt group provide <u>system information and statistics such as system name, software version, AP licenses, CPU and memory utilization, IP addressing, system services running and other system information.</u></p> <p>The following tables list the objects within each top-level MIB tree in the RUCKUS-ZD-SYSTEM-MIB.txt file.</p> </div> <p>Source: ZoneDirector 10.2 SNMP Reference Guide, p. 65.</p>

Claim 1

a data store storing data relating to a procedure for managing the at least one operational parameter of the network entity;

The ZoneDirector utilizes a data store (e.g., memory) storing data relating to a procedure for managing the at least one operational parameter of the network (for example, in the form of MIBs). As an example, the excerpt below shows MIBs stored in the data store.

TABLE 144 Expanded System Info MIB Tree

MIB Tree	Node Name	OID	Description
ruckusZDSysInfo	ruckusZDSysNEId	1.3.6.1.4.1.25053.1.2.1.1.1.5.50	NE ID
	ruckusZDSysManufacturer	1.3.6.1.4.1.25053.1.2.1.1.1.5.51	Manufacturer
	ruckusZDSysSoftwareName	1.3.6.1.4.1.25053.1.2.1.1.1.5.52	Software name
	ruckusZDSysCPUUtil	1.3.6.1.4.1.25053.1.2.1.1.1.5.58	CPU utilization
	ruckusZDSysMemoryUtil	1.3.6.1.4.1.25053.1.2.1.1.1.5.59	Memory utilization
	ruckusZDSysMemorySize	1.3.6.1.4.1.25053.1.2.1.1.1.5.60	Memory size
	ruckusZDSysFlashFreeSize	1.3.6.1.4.1.25053.1.2.1.1.1.5.65	Flash free size
	ruckusZDSysMgmtVlanID	1.3.6.1.4.1.25053.1.2.1.1.1.5.67	Management VLAN ID
	ruckusZDSysCPUModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.70	CPU model
	ruckusZDSysmtCPUSpeed	1.3.6.1.4.1.25053.1.2.1.1.1.5.71	CPU speed
	ruckusZDSysmtFlashModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.72	Flash model
	ruckusZDSysmtMemModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.73	Memory model
	ruckusZDSysStartTime	1.3.6.1.4.1.25053.1.2.1.1.1.5.74	System startup time
	ruckusZDSysCurrentTime	1.3.6.1.4.1.25053.1.2.1.1.1.5.80	System current time
	ruckusZDSysAPFirmwareServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.81	AP firmware download server
	ruckusZDSysAPConfigServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.82	AP configuration server
	ruckusZDSysIDSAAllowedESSID	1.3.6.1.4.1.25053.1.2.1.1.1.5.85	Allowed ESSIDs
	ruckusZDSysIDSAAllowBSSID	1.3.6.1.4.1.25053.1.2.1.1.1.5.86	Allowed BSSIDs
	ruckusZDSysIDSAAllowOUI	1.3.6.1.4.1.25053.1.2.1.1.1.5.87	Allowed OUIs
	ruckusZDSysBandwidthUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.90	Number of system bandwidth utilization percent.
	ruckusZDSysDropPacketRateValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.91	Number of system drop packets rate percent.
	ruckusZDSysCPUUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.92	CPU utilization
	ruckusZDSysMemUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.95	Memory utilization
	ruckusZDSysOnlineStaValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.96	Online stations
	ruckusZDSysLocationLongitude	1.3.6.1.4.1.25053.1.2.1.1.1.5.97	AC longitude
	ruckusZDSysLocationLatitude	1.3.6.1.4.1.25053.1.2.1.1.1.5.98	AC latitude
	ruckusZDSysDHCPSEServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.110	DHCP server enabled or disabled
	ruckusZDAPCPUvalve	1.3.6.1.4.1.25053.1.2.1.1.1.5.120	AP's CPU utilization value for sending trap
	ruckusZDAPMemoryvalve	1.3.6.1.4.1.25053.1.2.1.1.1.5.121	AP's Memory utilization value for sending trap
	ruckusZDHeartBeatStatus	1.3.6.1.4.1.25053.1.2.1.1.1.5.122	Current heartbeat on-off status

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 66.

Claim 1	
<p>a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and</p>	<p>The Ruckus system utilizes a web server (e.g. a server hosting the software used for the web interface) that provides an interactive environment (e.g. the web interface presented to a user through a web browser) to manage the at least one operational parameter of the network entity (e.g., enabling/disabling an SNMP trap or configuring other SNMP-related settings). For example, the excerpt below shows that the Ruckus ZoneDirector controllers include a web server.</p> <div data-bbox="523 658 1779 1065" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Basic installation instructions are included in the <i>Quick Start Guide</i> that shipped with your ZoneDirector. The steps are summarized below:</p> <ol style="list-style-type: none"> 1. Connect and discover ZoneDirector using UPnP (Universal Plug and Play). On Windows clients, you may need to turn on network discovery in the Network and Sharing Center > Advanced Sharing Settings. <p style="text-align: center;">NOTE Beginning in ZoneDirector 10.2, you can also perform the same Setup Wizard steps using a CLI Wizard. Refer to the <i>ZoneDirector 10.2 Command Line Interface Reference Guide</i> for more information.</p> <ol style="list-style-type: none"> 2. Double-click the ZoneDirector icon when UPnP displays it, or 3. Point your web browser to ZoneDirector's IP address (default: 192.168.0.2). 4. Run the Setup Wizard to create an internal and (optionally) a guest WLAN. </div> <p>Source: ZoneDirector 10.2 SNMP Reference Guide, p. 21.</p>

Claim 1

a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and

As an example, the Web server provides the interactive environment shown below to manage the at least one operational parameter of the network entity.

The screenshot displays the Ruckus ZoneDirector web interface. The top navigation bar includes the Ruckus logo, the title "ZoneDirector - ruckus", and a status bar showing the date/time "2015/06/25 20:27:21" along with links for "Help", "Toolbox", and "Log Out (admin)". Below this is a secondary navigation bar with tabs for "Dashboard", "Monitor", "Configure" (which is active), and "Administer".

The left sidebar contains a list of system components: System, WLANs, Access Points, Access Control, Maps, Roles, Users, Guest Access, Hotspot Services, Hotspot 2.0 Services, Mesh, AAA Servers, DHCP Relay, Alarm Settings, Services, WIPS, and Certificate. The "WLANs" tab is selected.

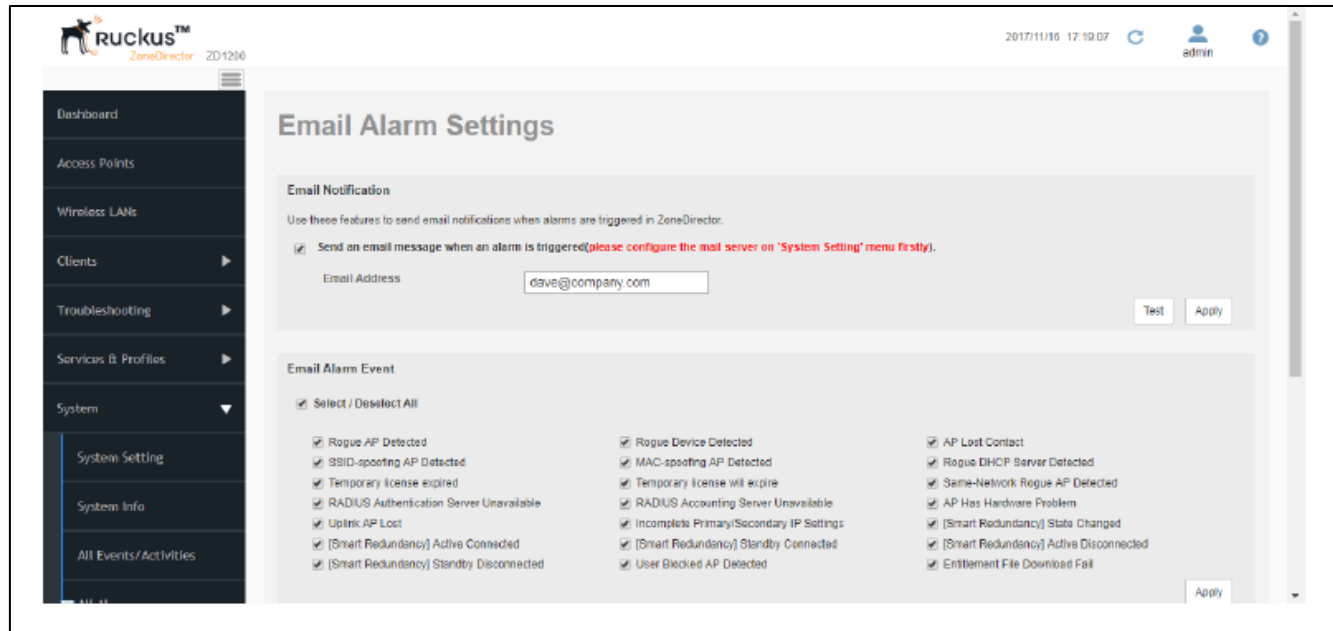
The main content area is titled "WLANs" and contains several sections:

- WLANs:** A table listing current WLANs with columns for Name, ESSID, Description, Authentication, Encryption, and Actions. It includes a "Create New" link and a search bar. Below the table, there are radio buttons to "Include all terms" (selected) or "Include any of these terms".
- WLAN Groups:** A table listing current WLAN groups with columns for Name, Description, and Actions. It includes a "Create New" link and a search bar. Below the table, there are radio buttons to "Include all terms" (selected) or "Include any of these terms".
- Zero-IT Activation:** A section explaining that Zero-IT Activation simplifies the configuration of users' wireless settings. It instructs users to connect their wireless devices to either a wired network or a dedicated activation WLAN/SSID, then go to the Activation URL shown below. The Activation URL is "http://zddemo.ruckuswireless.com/activate". There is an "Authentication Server" dropdown menu and an "Apply" button.
- Dynamic PSK:** A section explaining that to provide maximum security, each user is assigned a unique pre-shared key (PSK) when they activate their wireless access. It instructs users to set when the PSK should expire. The "PSK Expiration" dropdown menu is set to "Unlimited".

Claim 1

a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and

The excerpt below shows yet another example interactive environment to manage the at least one operational parameter of the network entity.



Source: ZoneDirector 10.2 User Guide, p. 17.

Claim 1

a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and

The Web-server, via the web interface, provides an interactive environment (e.g., input boxes, check boxes, buttons, drop-down menus, etc.) to manage at least one operational parameter (e.g., SNMP-related settings, such as enabling SNMP traps, configuring SNMP settings, and enabling SNMP notifications, as shown in the excerpts below) of the network entity.

Introduction

This *Reference Guide* provides information on the Ruckus Wireless ZoneDirector Simple Network Management Protocol (SNMP) Management Information Base objects (MIBs) that ZoneDirector supports.

NOTE

For information on how to enable SNMP trap delivery and configure other SNMP settings using the ZoneDirector web interface, refer to the *ZoneDirector User Guide*.

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the Ruckus Networks support site:

<https://support.ruckuswireless.com/documents>.

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 13.

The screenshot displays the ZoneDirector web interface for configuring the SNMPv2 Agent. The interface includes a 'Password' field with an 'Apply' button. Below this, the 'SNMPv2 Agent' section is active, showing 'ZoneDirector supports SNMPv2 agent. Enter the Read-Only and Read-Write communities.' The 'Enable SNMP Agent' checkbox is checked, and the 'Inherit SNMPv2 for APs' checkbox is also checked. The 'System Contact' field is set to 'https://support.ruckuswireless.com', and the 'System Location' field is set to '350 West Java Dr. Sunnyvale'. The 'SNMP RO community' field is set to 'public', and the 'SNMP RW community' field is set to 'private'. An 'Apply' button is located at the bottom right of this section. Below the 'SNMPv2 Agent' section, the 'SNMPv3 Agent' section is visible, with 'ZoneDirector supports SNMPv3 agent.' and an unchecked 'Enable SNMPv3 Agent' checkbox. The 'SNMPv3 Agent' section includes a table for configuring users, with columns for 'Privilege', 'User', 'Authentication', 'Auth Pass Phrase', 'Privacy', and 'Privacy Phrase'. The 'Read-Only' row shows 'MDCS' for authentication and 'DES' for privacy.

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 295

Claim 1	
<p>an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,</p>	<p>The Ruckus systems utilize an interface that communicates values of the at least one operation parameter between the Web server (e.g., the server hosting the web interface) and the intelligent agent (e.g., the SNMP agent) with a predetermined data structure (e.g. data structures utilized in an SNMP management system such as MIBs).</p> <div data-bbox="490 469 1779 1109" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <h3 style="color: #D95319; margin: 0;">Overview of ZoneDirector</h3> <p>Ruckus Networks ZoneDirector serves as a central control system for Ruckus Wi-Fi Access Points (APs). ZoneDirector provides unified AP configuration and updates, wireless LAN security control, RF management, and automatic coordination of Ethernet-connected and mesh-connected APs.</p> <p>Using ZoneDirector in combination with Ruckus APs allows deployment of a Smart Mesh network, to extend wireless coverage throughout a location without having to physically connect each AP to Ethernet.</p> <p>In a Smart Mesh network, the APs form a wireless mesh topology to route client traffic between any member of the mesh and the wired network. Meshing significantly reduces the cost and time requirements of deploying an enterprise-class wireless LAN (WLAN), in addition to providing much greater flexibility in AP placement.</p> <p>ZoneDirector also integrates network monitoring, sophisticated user access controls, Wi-Fi performance diagnostic tools, highly configurable guest access features and advanced security features within a single system.</p> <p>User authentication can be accomplished using an internal user database, or forwarded to an external Authentication, Authorization and Accounting (AAA) server such as RADIUS or Active Directory. Once users are authenticated, client traffic is not required to pass through ZoneDirector, thereby eliminating bottlenecks when higher speed Wi-Fi technologies - such as 802.11ac - are used.</p> <p><u>This user guide provides complete instructions for using the ZoneDirector web-based user interface. With the web interface, you can customize and manage all aspects of ZoneDirector and your Ruckus Networks Wi-Fi deployment.</u></p> </div> <p>Source: ZoneDirector 10.2 User Guide, p. 17.</p>

Claim 1	
<p>an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,</p>	<p>The Ruckus systems utilize an interface (e.g. an interface coupling the web server to the intelligent agent) that communicates values of the at least one operation parameter (e.g., value related to SNMP MIBS such as SNMP enablement, SNMP trap enable, other SNMP settings, etc.) between the Web server (e.g., the server hosting the web interface) and the intelligent agent (e.g., the SNMP agent) with a predetermined data structure (e.g. data structures utilized in an SNMP management system such as MIBs).</p> <div data-bbox="508 488 1758 892" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Introduction</p> <p>This <i>Reference Guide</i> provides information on the Ruckus Wireless ZoneDirector Simple Network Management Protocol (SNMP) Management Information Base objects (MIBs) that ZoneDirector supports.</p> <p>NOTE For information on how to <u>enable SNMP trap delivery and configure other SNMP settings using the ZoneDirector web interface</u>, refer to the <i>ZoneDirector User Guide</i>.</p> <p>Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the Ruckus Networks support site: https://support.ruckuswireless.com/documents.</p> </div> <p>Source: ZoneDirector 10.2 SNMP Reference Guide, p. 13.</p>

Claim 1

an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,

The Ruckus systems utilize a predetermined data structure (e.g., MIB structure) for communicating values of at least one operational parameter between the Web server and the intelligent agent.

Standard MIBs

• Standard MIBs That ZoneDirector Supports..... 15

Standard MIBs That ZoneDirector Supports

ZoneDirector supports standard SNMPv2 MIB objects as defined in RFC 1213.

The following table lists the SNMP standard MIBs that ZoneDirector supports:

Name	OID
system	1.3.6.1.2.1.1
interfaces	1.3.6.1.2.1.2
ip	1.3.6.1.2.1.4
ipAddrTable	1.3.6.1.2.1.4.20
ipRouteTable	1.3.6.1.2.1.4.21
ipForward	1.3.6.1.2.1.4.24
ipv6IpForwarding	1.3.6.1.2.1.4.25
icmp	1.3.6.1.2.1.5
tcp	1.3.6.1.2.1.6
udp	1.3.6.1.2.1.7
snmp	1.3.6.1.2.1.11

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 15.

Claim 1

an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,

Below is a further example of the intelligent agent interacting with the network entity in accordance with a MIB data structure.

Event MIBs Overview

This section describes ZoneDirector and AP events and traps that are triggered when an event occurs, along with possible causes for the event and recommended actions to take (if any).

The MIBs described in this section are contained in the RUCKUS-ZD-EVENT-MIB.txt file. This section is divided into the following subsections:

- [ZoneDirector Event MIB Group](#) on page 17
- [Ruckus ZD Event Objects](#) on page 42
- [AP and Client Event MIB Group](#) on page 46
- [ZD Event Trap Switch Commands](#) on page 48

ZoneDirector Event MIB Group

The ruckusZDEventTraps MIB tree contains events that trigger SNMP traps to be delivered to an SNMP receiver.

ruckusZDEventAPJoinTrap

TABLE 2 ruckusZDEventAPJoinTrap

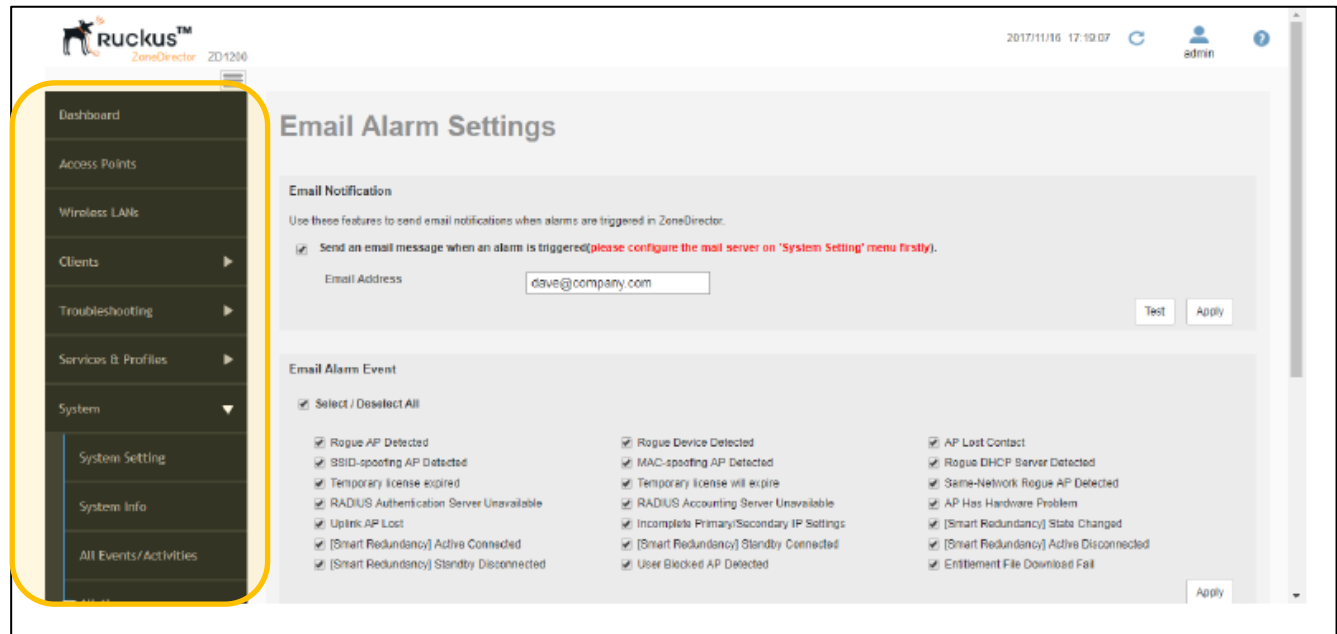
Name	ruckusZDEventAPJoinTrap
OID	1.3.6.1.4.1.25053.2.2.1.1
Severity	Minor
Status	current
Objects	ruckusZDEventSerial
	ruckusZDEventNEID
	ruckusZDEventSeverity
	ruckusZDEventType
	ruckusZDEventTime
	ruckusZDEventStatus
	ruckusZDEventTitle
	ruckusZDEventAPMacAddr
Description	Trigger when there is an AP join event. The AP's MAC address is enclosed.
Recommended Actions	None

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 17.

Claim 1

wherein the Web server provides the interactive environment using the Web pages generated by a Web page generator, the Web page generator that generates a set of linked Web pages in response to a request to carry out a procedure, wherein each Web page of the set of linked Web pages being based upon the data stored in the data store and corresponding to at least one step in the procedure to manage the at least one operational parameter of the network entity,

The Ruckus systems utilize a web server (e.g. the server that host the web interface) which provides the interactive environment using web pages (e.g. the user interface is presented via a web browser using web pages) generated by a web page generator.

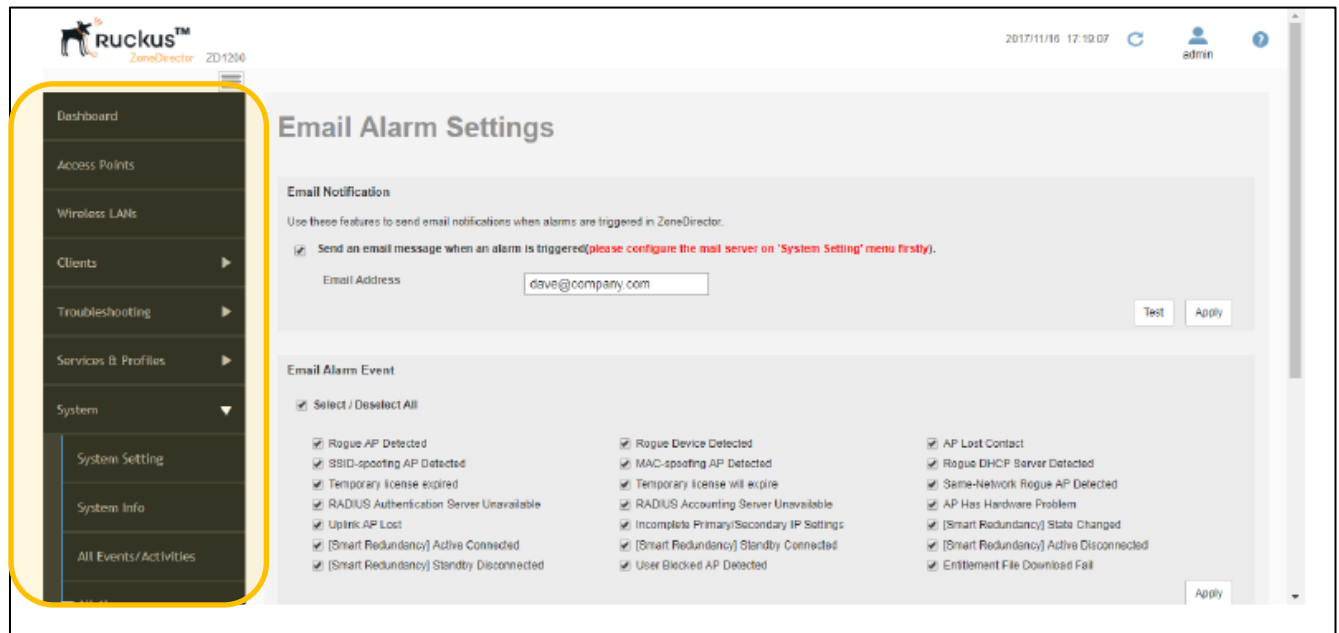


Source: ZoneDirector 10.2 User Guide, p. 17.

Claim 1

wherein the Web server provides the interactive environment using the Web pages generated by a Web page generator, the Web page generator that generates a set of linked Web pages in response to a request to carry out a procedure, wherein each Web page of the set of linked Web pages being based upon the data stored in the data store and corresponding to at least one step in the procedure to manage the at least one operational parameter of the network entity,

The web page generator generates a set of linked webpages (e.g. the web pages to be sent to a user's browser) in response to a request to carry out a procedure (e.g. a user's request to obtain data or manage/configure a device). Each web page of the set of linked web pages is based upon data stored in the data store (e.g. menu's and configuration data displayed in the interface for a particular device will be based on device data stored in a data store such as an MIB) and corresponds to at least one step in the procedure to manage the at least one operation parameter of the network entity (e.g. the webpage is tied to management or configuration functions).



Source: ZoneDirector 10.2 User Guide, p. 17.

Claim 1

wherein the interface uses the stored data relating to a procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether information retrieved using a form provided on the set of linked Web pages conforms to a rule relating to the procedure to manage the at least one operational parameter of the network entity, and

The interface uses the stored data (e.g. data in a MIB) relating to a procedure for managing the at least one operation parameter of the network entity (e.g. configuring or initiating an SNMP based command) to generate a determination result indicating whether information retrieved using a form provided on the set of linked web pages conforms to a rule relating to the procedure to manage the at least one operation parameter or the network entity. For example, when the information does not conform to a rule, the web interface may display an error message or generate an error routine.

Enabling the Built-in DHCP server

Ruckus recommends that you only enable the built-in DHCP server if there are no other DHCP servers on the network.

ZoneDirector's internal DHCP server can service only a single subnet (the one it's in) and not other VLANs that may be associated with client WLANs. If you enable the built-in DHCP server, Ruckus also recommends enabling the rogue DHCP server detector. For more information, refer to [Rogue DHCP Server Detection](#) on page 250.

1. Go to **System > System Settings**.
2. In the **DHCP Server** section, select the **Enable DHCP Server** check box.
3. In **Starting IP**, type the first IP address that the built-in DHCP server will allocate to DHCP clients. The starting IP address must be on the same subnet as the IP address assigned to ZoneDirector. If the value that you typed is invalid, an error message appears and prompts you to let ZoneDirector automatically correct the value. Click **OK** to automatically correct the entry.
4. In **Number of IPs**, type the maximum number of IP addresses that you want to allocate to requesting clients. The built-in DHCP server can allocate up to 512 IP addresses including the one assigned to ZoneDirector. The default value is 200.
5. In **Lease Time**, select a time period for which IP addresses will be allocated to DHCP clients. Options range from six hours to two weeks (default is one week).
6. If your APs are on different subnets from ZoneDirector, click the check box next to **DHCP Option 43** to enable Layer 3 discovery of ZoneDirector by the APs.
7. Click **Apply**. If you typed an invalid value in any of the text boxes, an error message appears and prompts you to let ZoneDirector automatically correct the value. Click OK to change it to a correct value.

FIGURE 201 The DHCP Server options

The screenshot shows the 'DHCP Server' configuration page in the ZoneDirector 10.2 User Guide. The page is divided into several sections:

- Shared Secret:** A text input field with a 'Show/Hide' button.
- Management IP Address:** A dropdown menu set to 'Disabled' with a '(Configure Management Interface)' link and an 'Apply' button.
- DHCP Server:**
 - A note: 'If a DHCP server does not exist on your network, you can enable this function to provide DHCP service to clients.'
 - Enable DHCP server:** A checked checkbox.
 - Starting IP:** A text input field containing '192.168.0.9'.
 - Number of IPs:** A text input field containing '200'.
 - Lease Time:** A dropdown menu set to 'One week'.
 - DHCP Option 43:** A checked checkbox with the text '(Layer 3 discovery protocol for AP to find ZoneDirector)'.
 - An 'Apply' button.
 - A link: 'To view all IP addresses that have been assigned by the DHCP server, click here.'
- Management Access Control:**
 - A note: 'This table lists the specific IP addresses which are allowed access to the ZoneDirector. Click Create New to add another IP address, or click Edit to make changes to an existing entry.'
 - A table with columns: Name, IP address, and Actions.
 - Buttons: 'Create New' and 'Delete'.

Source: ZoneDirector 10.2 User Guide, p. 275.

Claim 1

wherein the interface uses the stored data relating to a procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether information retrieved using a form provided on the set of linked Web pages conforms to a rule relating to the procedure to manage the at least one operational parameter of the network entity, and

As discussed, the Ruckus systems utilize MIBs, such as the ZoneDirector System MIB of enabling a ZoneDirector DHCP server.

ZoneDirector System MIBs
Expanded System Info MIBs

TABLE 144 Expanded System Info MIB Tree

MIB Tree	Node Name	OID	Description
ruckusZDSysInfo	ruckusZDSysNEID	1.3.6.1.4.1.25053.1.2.1.1.1.5.50	NE ID
	ruckusZDSysManufacturer	1.3.6.1.4.1.25053.1.2.1.1.1.5.51	Manufacturer
	ruckusZDSysSoftwareName	1.3.6.1.4.1.25053.1.2.1.1.1.5.52	Software name
	ruckusZDSysCPUUtil	1.3.6.1.4.1.25053.1.2.1.1.1.5.58	CPU utilization
	ruckusZDSysMemoryUtil	1.3.6.1.4.1.25053.1.2.1.1.1.5.59	Memory utilization
	ruckusZDSysMemorySize	1.3.6.1.4.1.25053.1.2.1.1.1.5.60	Memory size
	ruckusZDSysFlashFreeSize	1.3.6.1.4.1.25053.1.2.1.1.1.5.65	Flash free size
	ruckusZDSysMgmtVlanID	1.3.6.1.4.1.25053.1.2.1.1.1.5.67	Management VLAN ID
	ruckusZDSysCPUModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.70	CPU model
	ruckusZDSysCPUSpeed	1.3.6.1.4.1.25053.1.2.1.1.1.5.71	CPU speed
	ruckusZDSysFlashModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.72	Flash model
	ruckusZDSysMemModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.73	Memory model
	ruckusZDSysStartTime	1.3.6.1.4.1.25053.1.2.1.1.1.5.74	System startup time
	ruckusZDSysCurrentTime	1.3.6.1.4.1.25053.1.2.1.1.1.5.80	System current time
	ruckusZDSysAPFirmwareServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.81	AP firmware download server
	ruckusZDSysAPConfigServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.82	AP configuration server
	ruckusZDSysAllowedESSID	1.3.6.1.4.1.25053.1.2.1.1.1.5.85	Allowed ESSIDs
	ruckusZDSysAllowedBSSID	1.3.6.1.4.1.25053.1.2.1.1.1.5.86	Allowed BSSIDs
	ruckusZDSysAllowedOUI	1.3.6.1.4.1.25053.1.2.1.1.1.5.87	Allowed OUIs
	ruckusZDSysBandwidthUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.90	Number of system bandwidth utilization percent.
	ruckusZDSysDropPacketRateValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.91	Number of system drop packets rate percent.
	ruckusZDSysCPUUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.92	CPU utilization
	ruckusZDSysMemUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.95	Memory utilization
	ruckusZDSysOnlineStaValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.96	Online stations
	ruckusZDSysLocationLongitude	1.3.6.1.4.1.25053.1.2.1.1.1.5.97	AC longitude
	ruckusZDSysLocationLatitude	1.3.6.1.4.1.25053.1.2.1.1.1.5.98	AC latitude
	ruckusZDSysDHCPServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.110	DHCP server enabled or disabled

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 66.

Claim 1	
<p>wherein the interface uses the stored data relating to a procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether information retrieved using a form provided on the set of linked Web pages conforms to a rule relating to the procedure to manage the at least one operational parameter of the network entity, and</p>	<p>The excerpt below shows another example of rules relating to a procedure to manage the at least one operational parameter of the network entity. The excerpt further shows the interface using the stored data to generate a determination result.</p> <div data-bbox="490 458 1785 922" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>General Options</p> <ul style="list-style-type: none"> • Name/ESSID: Type a short name for this WLAN. The SSID must contain between 1 and 32 characters. Allowable characters include printable ASCII characters from space (char 32) to ~ (char 126). A space can be used in the name, but the name cannot begin or end with a space character. If a space is included at the beginning or end of the ESSID, it will be automatically removed. If a disallowed ASCII character (not within the range 32-126) is included, an error message will appear. <ul style="list-style-type: none"> - In general, the WLAN name is the same as the advertised SSID (the name of the wireless network as displayed in the client's wireless configuration program). However, you can also separate the ESSID from the WLAN name by entering a name for the WLAN in the first field, and a broadcast SSID in the second field. In this way, you can advertise the same SSID in multiple locations (controlled by the same ZoneDirector) while still being able to manage the different WLANs independently. Each WLAN "name" must be unique within ZoneDirector, while the broadcast SSID can be the same for multiple WLANs. • Description: Enter a brief description of the qualifications/purpose for this WLAN, e.g., "Engineering" or "Voice." </div> <p>Source: ZoneDirector 10.2 User Guide, p. 68.</p>

Claim 1

wherein the interface uses the stored data relating to a procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether information retrieved using a form provided on the set of linked Web pages conforms to a rule relating to the procedure to manage the at least one operational parameter of the network entity, and

As another example when the information does not conform to a rule, an error may be triggered.

ruckusEventSetErrorTrap**TABLE 78** ruckusEventSetErrorTrap

Name	ruckusEventSetErrorTrap
OID	1.3.6.1.4.1.25053.2.1.1.3
Severity	Minor
Status	current
Objects	1: ruckusSetErrorOID
Description	Trigger when there is an snmp-set error event. The OID of the snmp-set is enclosed.
Recommended Action	None.

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 47.

Claim 1

wherein the interface communicates values to the intelligent agent based on the information retrieved from the form in response to the determination result indicating conformance.

The interface communicates values (e.g., values associated with enabling/disabling an SNMP trap or configuring alarm, email address, or other SNMP-related settings) to the intelligent agent (e.g., the SNMP agent) based on the information retrieved from the form (e.g., information input via the web interface) in response to the determination result indicating conformance (e.g. after confirming that any user input conforms to any rules, the data inputted will be communicated to an SNMP agent on the device for further processing). If the information has been entered correctly (i.e. "in conformance"), an error message may not appear, allowing communication of the values.

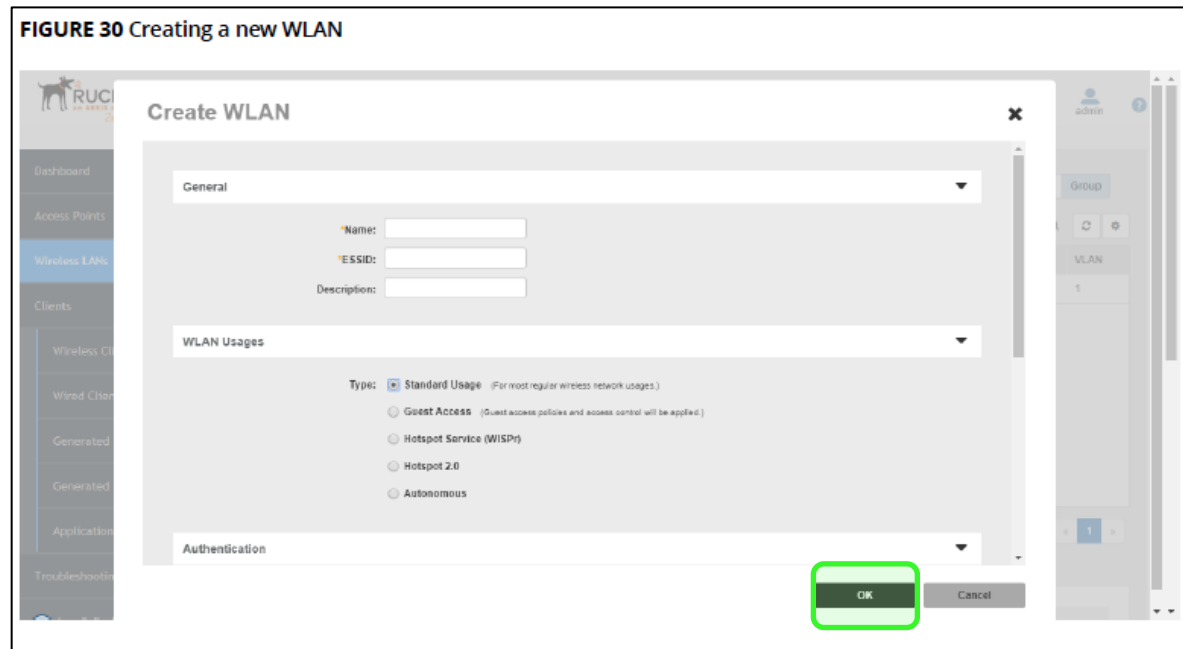
The screenshot shows the Ruckus ZoneDirector 10.2 web interface. The sidebar menu on the left includes options like Dashboard, Access Points, Wireless LANs, Clients, Troubleshooting, Services & Profiles, and System. The main content area is titled "Email Alarm Settings". It contains two sections: "Email Notification" and "Email Alarm Event". The "Email Notification" section has a checkbox for "Send an email message when an alarm is triggered" and a text field for "Email Address" containing "dave@company.com". The "Email Alarm Event" section has a "Select / Deselect All" checkbox and a list of 15 events with checkboxes, including "Rogue AP Detected", "Rogue Device Detected", "AP Lost Contact", etc. A green box highlights the "Email Alarm Event" section. A green box also highlights the "Apply" button in the top right corner.

Source: ZoneDirector 10.2 User Guide, p. 17.

Claim 1

wherein the interface communicates values to the intelligent agent based on the information retrieved from the form in response to the determination result indicating conformance.

Below is another example of communicating values to the intelligent agent based on information retrieved from the form in response to the determination result indicating conformance (e.g., no error message appearing and/or “OK” button enabled).



Source: ZoneDirector 10.2 User Guide, p. 17.

Claim 8	
<p>A Web-based management system comprising a Web-based management engine comprising:</p>	<p>Ruckus systems, for example the Ruckus ZoneDirector (including the ZoneDirector 1200, 3000, and 5000) and/or ZoneDirector in conjunction with Ruckus access points, provide a Web-based management engine for a network entity (e.g., a ZoneDirector device and/or a Ruckus access point). The ZoneDirector utilizes a web-based management engine.</p> <div data-bbox="465 429 1750 1068" style="border: 1px solid black; padding: 10px;"> <p>Overview of ZoneDirector</p> <p><u>Ruckus Networks ZoneDirector serves as a central control system for Ruckus Wi-Fi Access Points (APs). ZoneDirector provides unified AP configuration and updates, wireless LAN security control, RF management, and automatic coordination of Ethernet-connected and mesh-connected APs.</u></p> <p>Using ZoneDirector in combination with Ruckus APs allows deployment of a Smart Mesh network, to extend wireless coverage throughout a location without having to physically connect each AP to Ethernet.</p> <p>In a Smart Mesh network, the APs form a wireless mesh topology to route client traffic between any member of the mesh and the wired network. Meshing significantly reduces the cost and time requirements of deploying an enterprise-class wireless LAN (WLAN), in addition to providing much greater flexibility in AP placement.</p> <p>ZoneDirector also integrates network monitoring, sophisticated user access controls, Wi-Fi performance diagnostic tools, highly configurable guest access features and advanced security features within a single system.</p> <p>User authentication can be accomplished using an internal user database, or forwarded to an external Authentication, Authorization and Accounting (AAA) server such as RADIUS or Active Directory. Once users are authenticated, client traffic is not required to pass through ZoneDirector, thereby eliminating bottlenecks when higher speed Wi-Fi technologies - such as 802.11ac - are used.</p> <p><u>This user guide provides complete instructions for using the ZoneDirector web-based user interface. With the web interface, you can customize and manage all aspects of ZoneDirector and your Ruckus Networks Wi-Fi deployment.</u></p> </div> <p>Source: ZoneDirector 10.2 User Guide, p. 17.</p>

Claim 8	
<p>A Web-based management system comprising a Web-based management engine comprising:</p>	<p>As another example, the excerpt below show systems with the ZoneDirector 5000 providing a Web-based management engine for a network entity.</p> <div data-bbox="465 365 1348 899"> <p>Ruckus ZoneDirector 5000 Overview:</p> <p>The most affordable and scalable high-end Smart WLAN controller in its class</p> <p>The ZoneDirector 5000 (ZD5000) is the industry's first controller-based system that can be flexibly deployed either in-line, or out of the data path, supporting up to 20,000 clients, 1,000 access points (APs) and 2048 wireless LANs (WLANs) within a single, easy-to-use platform. If you don't believe us, compare it for yourself against the alternatives.</p> <p>With 6x the processing power and twice the capacity and redundancy of previous ZoneDirectors, the ZD5000 is perfect for large-scale wireless environments such as hotels, schools, hospitals and managed service environments. With a lifetime warranty, the ZD5000 is the first Smart WLAN platform to combine power, simplicity and scalability into a single, affordable system.</p> <p>Highly resilient with dual/hot-swappable AC/DC power supplies and fans, the ZD5000 integrates the same ZoneFlex Smart/OS software as other ZoneDirector platforms, supporting advanced features such as meshing, hot spot authentication, guest networking and dynamic Wi-Fi security at no additional cost.</p> <p>The Ruckus Networks ZoneDirector™ 5000 (ZD5000) is the first WLAN controller to uniquely combine power, simplicity and scalability into an affordable system. Supporting up to 20,000 clients and 2048 WLANs per device, the ZD5000 manages up to 1000 ZoneFlex Smart Wi-Fi access points from a single location.</p> <p>Unlike conventional wireless LAN systems that are costly, complex and cumbersome to deploy, the ZD5000 is designed for simplicity and ease of use. It's ideal for any large-scale enterprise requiring a high-performance wireless LAN that can be easily deployed and managed.</p> <p>The ZD5000 integrates the Ruckus Smart/OS application engine that delivers advanced features such as smart wireless meshing, high availability, hot spot authentication, elegant guest networking and dynamic Wi-Fi security. Deployed and operated by non-wireless experts and installed quickly and easily, with the ZD5000, any organization with limited IT staff and budget can create a robust and secure multimedia WLAN in a matter of minutes.</p> <p>The ZD5000 easily integrates with network, security and authentication infrastructure already in place and is easily configured through a point-and-click web wizard. Ruckus ZoneFlex APs automatically discover and are configured by the ZoneDirector. Redundant and secure, the ZD5000 provides WLAN-wide network, security, RF and location management within a single, easy-to-use and affordable WLAN system.</p> </div> <div data-bbox="1381 365 1831 529"> <p>Super Simple Management</p> <ul style="list-style-type: none"> • Graphic and Web 2.0 intuitive user interface • HTTP and HTTPS/SSL connections • Full CLI support • Manageable by Ruckus FlexMaster system • SNMP v1/v2c/v3, Telnet/SSHv2 support </div> <div data-bbox="465 1012 1742 1128"> <p>IT lite deployment in 5 minutes, simple to use and manage</p> <p>Web-based configuration wizard configures an entire WLAN in minutes. ZoneFlex APs auto-discover the ZoneDirector. Centralized management and automatic, real-time optimization of entire WLAN</p> </div> <p>Source: http://www.ruckussecurity.com/ZoneDirector-5000.asp</p>

Claim 8

A Web-based management system comprising a Web-based management engine comprising:

Below is an example of the ZoneDirector web-based interface.

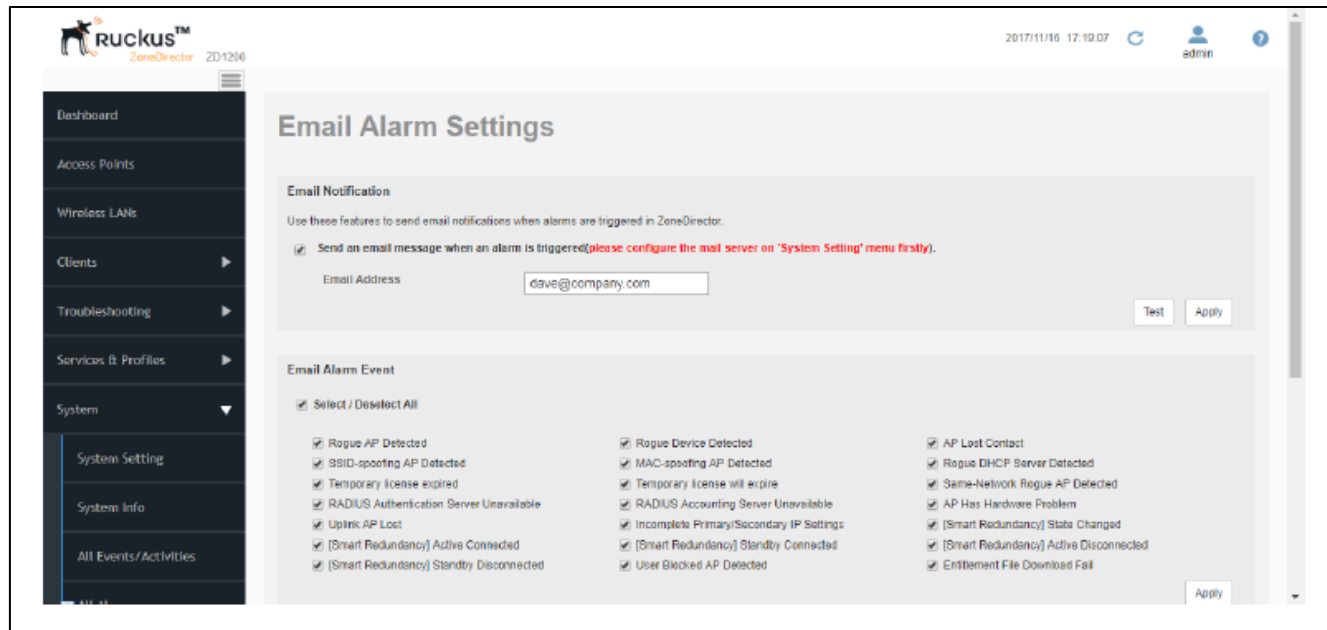
The screenshot displays the Ruckus ZoneDirector web-based interface. The top navigation bar includes the Ruckus logo, the title "ZoneDirector - ruckus", and a status bar showing the date and time (2015/06/25 20:27:21) along with links for Help, Toolbox, and Log Out (admin). Below the navigation bar, there are tabs for Dashboard, Monitor, Configure, and Administer. The left sidebar contains a list of system components: System, WLANs, Access Points, Access Control, Maps, Roles, Users, Guest Access, Hotspot Services, Hotspot 2.0 Services, Mesh, AAA Servers, DHCP Relay, Alarm Settings, Services, WIPS, and Certificate. The main content area is divided into several sections:

- WLANs**: This section provides a table listing current WLANs and offers options to create new WLANs or edit existing ones. It includes a search bar and filters for "Include all terms" and "Include any of these terms".
- WLAN Groups**: This section provides a table listing current WLAN groups and offers options to create new WLAN groups or edit existing ones. It includes a search bar and filters for "Include all terms" and "Include any of these terms".
- Zero-IT Activation**: This section explains the Zero-IT Activation process, which simplifies the configuration of users' wireless settings. It includes an activation URL: <http://zddemo.ruckuswireless.com/activate> and an authentication server dropdown menu.
- Dynamic PSK**: This section explains the Dynamic PSK process, which provides maximum security by assigning a unique pre-shared key (PSK) to each user. It includes a PSK expiration dropdown menu set to "Unlimited".

Claim 8

A Web-based management system comprising a Web-based management engine comprising:

Below is yet another example of the ZoneDirector web-based interface.



Source: ZoneDirector 10.2 User Guide, p. 17.

Claim 8	
<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>The Ruckus systems utilize an intelligent agent that is used to obtain information about at least one operational parameter of the network entity and/or modify its behavior. For example, the ZoneDirector includes an internal SNMP agent, which is an intelligent agent.</p> <div data-bbox="494 622 1727 714" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><u>Enabling the SNMP Agent</u></p> <p>The procedure for enabling <u>ZoneDirector's internal SNMP agent</u> depends on whether your network is using SNMPv2 or SNMPv3.</p> </div> <p>Source: ZoneDirector 10.2 User Guide, p. 294.</p>

Claim 8	
<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>Additionally, or alternatively, Ruckus's ZoneDirector-managed network entities, including Ruckus wireless Access Points are configured to be managed using the ZoneDirector.</p> <div data-bbox="506 425 1723 1056" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <h3 style="color: #D95319;">Overview of ZoneDirector</h3> <p>Ruckus Networks ZoneDirector serves as a central control system for Ruckus Wi-Fi Access Points (APs). ZoneDirector provides unified AP configuration and updates, wireless LAN security control, RF management, and automatic coordination of Ethernet-connected and mesh-connected APs.</p> <p>Using ZoneDirector in combination with Ruckus APs allows deployment of a Smart Mesh network, to extend wireless coverage throughout a location without having to physically connect each AP to Ethernet.</p> <p>In a Smart Mesh network, the APs form a wireless mesh topology to route client traffic between any member of the mesh and the wired network. Meshing significantly reduces the cost and time requirements of deploying an enterprise-class wireless LAN (WLAN), in addition to providing much greater flexibility in AP placement.</p> <p><u>ZoneDirector also integrates network monitoring, sophisticated user access controls, Wi-Fi performance diagnostic tools, highly configurable guest access features and advanced security features within a single system.</u></p> <p>User authentication can be accomplished using an internal user database, or forwarded to an external Authentication, Authorization and Accounting (AAA) server such as RADIUS or Active Directory. Once users are authenticated, client traffic is not required to pass through ZoneDirector, thereby eliminating bottlenecks when higher speed Wi-Fi technologies - such as 802.11ac - are used.</p> <p>This user guide provides complete instructions for using the ZoneDirector web-based user interface. With the web interface, you can customize and manage all aspects of ZoneDirector and your Ruckus Networks Wi-Fi deployment.</p> </div> <p>Source: ZoneDirector 10.2 User Guide, p. 17.</p>

Claim 8	
<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>The ZoneDirector-managed network entities are configured to communicate using SNMP. Thus, the entities include an SNMP agent, which is an intelligent agent.</p> <div data-bbox="510 636 1796 743" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>3. When the SNMPv2 Agent is enabled, the Inherit SNMPv2 for APs option appears. This option is enabled by default. <u>Disabling it allows you to disable SNMP traps on all APs.</u></p> </div> <p>Source: ZoneDirector 10.2 User Guide, p. 295.</p>

Claim 8																																																							
<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>Network entities that are configured to be managed by SmartZone include the following examples:</p> <table border="0"> <tr> <td>Ruckus C110</td><td>http://www.ruckussecurity.com/ZoneFlex-C110.asp</td></tr> <tr> <td>Ruckus E510</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus H320</td><td>http://www.ruckussecurity.com/ZoneFlex-H320.asp</td></tr> <tr> <td>Ruckus H510</td><td>http://www.ruckussecurity.com/ZoneFlex-H510.asp</td></tr> <tr> <td>Ruckus R310</td><td>http://www.ruckussecurity.com/ZoneFlex-R310.asp</td></tr> <tr> <td>Ruckus R320</td><td>http://www.ruckussecurity.com/ZoneFlex-R310.asp</td></tr> <tr> <td>Ruckus R510</td><td>http://www.ruckussecurity.com/ZoneFlex-R310.asp</td></tr> <tr> <td>Ruckus R550</td><td>http://www.ruckussecurity.com/ZoneFlex-R310.asp</td></tr> <tr> <td>Ruckus R610</td><td>http://www.ruckussecurity.com/ZoneFlex-R310.asp</td></tr> <tr> <td>Ruckus R650</td><td>http://www.ruckussecurity.com/ZoneFlex-R310.asp</td></tr> <tr> <td>Ruckus R710</td><td>http://www.ruckussecurity.com/ZoneFlex-R750.asp</td></tr> <tr> <td>Ruckus R720</td><td>http://www.ruckussecurity.com/ZoneFlex-R750.asp</td></tr> <tr> <td>Ruckus R730</td><td>http://www.ruckussecurity.com/ZoneFlex-R750.asp</td></tr> <tr> <td>Ruckus R750</td><td>http://www.ruckussecurity.com/ZoneFlex-R750.asp</td></tr> </table> <p>https://www.ruckussecurity.com/ZoneFlex-R850.asp?utm_term=ruckus%20r850&utm_campaign=Ruckus+Wireless+*168&utm_source=adwords&utm_medium=ppc&hsa_tgt=kwd-919016351974&hsa_grp=102377129279&hsa_src=g&hsa_net=adwords&hsa_mt=e&hsa_ver=3&hsa_ad=444199499007&hsa_acc=9041622380&hsa_kw=ruckus%20r850&hsa_cam=36080881&gclid=CjwKCAjwmMX4BRAAEiAw-zM4JhZKNxwNJuGSogdXlpOxENOR61iwlzAltaA6mqD4iNeEePnhc3gQChoC5EYQAvD_BwE</p> <table border="0"> <tr> <td>Ruckus R850</td><td></td></tr> <tr> <td>Ruckus T310</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus T610</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus T610S</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus T710</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus T750</td><td>http://www.ruckussecurity.com/ZoneFlex-E510.asp</td></tr> <tr> <td>Ruckus ZoneFlex 7781</td><td>http://www.ruckussecurity.com/datasheets/799-629-ds-ruckus-7781-cm.pdf</td></tr> <tr> <td>Ruckus ZoneFlex H500</td><td>http://www.ruckussecurity.com/ZoneFlex-H500.asp</td></tr> <tr> <td>Ruckus ZoneFlex R300</td><td>https://www.ruckussecurity.com/ZoneFlex-R300.asp</td></tr> <tr> <td>Ruckus ZoneFlex R500</td><td>http://www.ruckussecurity.com/ZoneFlex-R500.asp</td></tr> <tr> <td>Ruckus ZoneFlex R600</td><td>http://www.ruckussecurity.com/ZoneFlex-R600.asp</td></tr> </table> <p>http://www.ruckussecurity.com/ZoneFlex-R700.asp?utm_term=zoneflex%20r700&utm_campaign=Ruckus+Wireless+*168&utm_source=adwords&utm_medium=ppc&hsa_tgt=kwd-64161560800&hsa_grp=11096537101&hsa_src=g&hsa_net=adwords&hsa_mt=e&hsa_ver=3&hsa_ad=39171980101&hsa_acc=9041622380&hsa_kw=zoneflex%20r700&hsa_cam=36080881&gclid=CjwKCAjwmMX4BRAAEiAw-zM4JvP1WQgWYfiDxpW-DJJaL3uKMf-ifirz71qepcWRgXOon7CLXL9EGxoCstgQAvD_BwE</p> <table border="0"> <tr> <td>Ruckus ZoneFlex R700</td><td></td></tr> <tr> <td>Ruckus ZoneFlex T300</td><td>http://www.ruckussecurity.com/datasheets/ds-zoneflex-t300-series.pdf</td></tr> </table>	Ruckus C110	http://www.ruckussecurity.com/ZoneFlex-C110.asp	Ruckus E510	http://www.ruckussecurity.com/ZoneFlex-E510.asp	Ruckus H320	http://www.ruckussecurity.com/ZoneFlex-H320.asp	Ruckus H510	http://www.ruckussecurity.com/ZoneFlex-H510.asp	Ruckus R310	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R320	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R510	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R550	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R610	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R650	http://www.ruckussecurity.com/ZoneFlex-R310.asp	Ruckus R710	http://www.ruckussecurity.com/ZoneFlex-R750.asp	Ruckus R720	http://www.ruckussecurity.com/ZoneFlex-R750.asp	Ruckus R730	http://www.ruckussecurity.com/ZoneFlex-R750.asp	Ruckus R750	http://www.ruckussecurity.com/ZoneFlex-R750.asp	Ruckus R850		Ruckus T310	http://www.ruckussecurity.com/ZoneFlex-E510.asp	Ruckus T610	http://www.ruckussecurity.com/ZoneFlex-E510.asp	Ruckus T610S	http://www.ruckussecurity.com/ZoneFlex-E510.asp	Ruckus T710	http://www.ruckussecurity.com/ZoneFlex-E510.asp	Ruckus T750	http://www.ruckussecurity.com/ZoneFlex-E510.asp	Ruckus ZoneFlex 7781	http://www.ruckussecurity.com/datasheets/799-629-ds-ruckus-7781-cm.pdf	Ruckus ZoneFlex H500	http://www.ruckussecurity.com/ZoneFlex-H500.asp	Ruckus ZoneFlex R300	https://www.ruckussecurity.com/ZoneFlex-R300.asp	Ruckus ZoneFlex R500	http://www.ruckussecurity.com/ZoneFlex-R500.asp	Ruckus ZoneFlex R600	http://www.ruckussecurity.com/ZoneFlex-R600.asp	Ruckus ZoneFlex R700		Ruckus ZoneFlex T300	http://www.ruckussecurity.com/datasheets/ds-zoneflex-t300-series.pdf
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Claim 8	
<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>The intelligent agent is used to obtain information about at least one operational parameter of the network entity and modify its behavior. For example, the SNMP agent uses the SNMP protocol for monitoring and management of the network entity (e.g., Ruckus's ZoneDirector controllers and access points). In an SNMP based management system, an SNMP agent is present on a managed network entity to convey device data within the system. Further, the intelligent agent interacts with the network entity in accordance with a predetermined data structure, such data structured according to the management information base ("MIB") specifications of the SNMP protocol (i.e., "MIBs").</p> <div data-bbox="465 544 1750 1182" style="border: 1px solid black; padding: 10px;"> <h3 style="color: #D9534F; margin: 0;">Overview of ZoneDirector</h3> <p><u>Ruckus Networks ZoneDirector serves as a central control system for Ruckus Wi-Fi Access Points (APs). ZoneDirector provides unified AP configuration and updates, wireless LAN security control, RF management, and automatic coordination of Ethernet-connected and mesh-connected APs.</u></p> <p>Using ZoneDirector in combination with Ruckus APs allows deployment of a Smart Mesh network, to extend wireless coverage throughout a location without having to physically connect each AP to Ethernet.</p> <p>In a Smart Mesh network, the APs form a wireless mesh topology to route client traffic between any member of the mesh and the wired network. Meshing significantly reduces the cost and time requirements of deploying an enterprise-class wireless LAN (WLAN), in addition to providing much greater flexibility in AP placement.</p> <p>ZoneDirector also integrates network monitoring, sophisticated user access controls, Wi-Fi performance diagnostic tools, highly configurable guest access features and advanced security features within a single system.</p> <p>User authentication can be accomplished using an internal user database, or forwarded to an external Authentication, Authorization and Accounting (AAA) server such as RADIUS or Active Directory. Once users are authenticated, client traffic is not required to pass through ZoneDirector, thereby eliminating bottlenecks when higher speed Wi-Fi technologies - such as 802.11ac - are used.</p> <p>This user guide provides complete instructions for using the ZoneDirector web-based user interface. With the web interface, you can customize and manage all aspects of ZoneDirector and your Ruckus Networks Wi-Fi deployment.</p> </div> <p>Source: ZoneDirector 10.2 User Guide, p. 17.</p>

Claim 8	
<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>Below shows examples of the Ruckus system obtaining information from and/or modifying the behavior of a network entity.</p> <div data-bbox="484 549 1785 769" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Configuring SNMP Support</p> <p>ZoneDirector provides support for Simple Network Management Protocol (SNMP v2 and v3), which allows you to <u>query ZoneDirector information such as system status, WLAN list, AP list, and clients list, and to set a number of system settings using a Network Management System (NMS) or SNMP MIB browser.</u></p> <p><u>You can also enable SNMP traps to receive immediate notifications for possible AP and client issues.</u></p> </div> <p>ZoneDirector User Guide, p. 294</p>

Claim 8	
<p>an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;</p>	<p>The excerpt below shows another example of the intelligent agent obtaining information about at least one operational parameter of the network entity (e.g., to display on the web interface) and modifying the behavior of the network entity (e.g., by enabling/disabling an SNMP trap or configuring other SNMP settings).</p> <div data-bbox="508 426 1760 829"><h3>Introduction</h3><p>This <i>Reference Guide</i> provides information on the Ruckus Wireless ZoneDirector Simple Network Management Protocol (SNMP) Management Information Base objects (MIBs) that ZoneDirector supports.</p><p>NOTE For information on how to enable SNMP trap delivery and configure other SNMP settings using the ZoneDirector web interface, refer to the <i>ZoneDirector User Guide</i>.</p><p>Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the Ruckus Networks support site: https://support.ruckuswireless.com/documents.</p></div> <p>Source: ZoneDirector 10.2 SNMP Reference Guide, p. 13.</p>

Claim 8

an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;

The intelligent agent interacts with the network entity in accordance with a predetermined data structure (e.g., a MIB data structure).

Standard MIBs

• Standard MIBs That ZoneDirector Supports..... 15

Standard MIBs That ZoneDirector Supports

ZoneDirector supports standard SNMPv2 MIB objects as defined in RFC 1213.

The following table lists the SNMP standard MIBs that ZoneDirector supports:

Name	OID
system	1.3.6.1.2.1.1
interfaces	1.3.6.1.2.1.2
ip	1.3.6.1.2.1.4
ipAddrTable	1.3.6.1.2.1.4.20
ipRouteTable	1.3.6.1.2.1.4.21
ipForward	1.3.6.1.2.1.4.24
ipv6IpForwarding	1.3.6.1.2.1.4.25
icmp	1.3.6.1.2.1.5
tcp	1.3.6.1.2.1.6
udp	1.3.6.1.2.1.7
snmp	1.3.6.1.2.1.11

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 15.

Claim 8

an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;

Below is a further example of the intelligent agent interacting with the network entity in accordance with a MIB data structure.

Event MIBs Overview

This section describes ZoneDirector and AP events and traps that are triggered when an event occurs, along with possible causes for the event and recommended actions to take (if any).

The MIBs described in this section are contained in the RUCKUS-ZD-EVENT-MIB.txt file. This section is divided into the following subsections:

- [ZoneDirector Event MIB Group](#) on page 17
- [Ruckus ZD Event Objects](#) on page 42
- [AP and Client Event MIB Group](#) on page 46
- [ZD Event Trap Switch Commands](#) on page 48

ZoneDirector Event MIB Group

The ruckusZDEventTraps MIB tree contains events that trigger SNMP traps to be delivered to an SNMP receiver.

ruckusZDEventAPJoinTrap

TABLE 2 ruckusZDEventAPJoinTrap

Name	ruckusZDEventAPJoinTrap
OID	1.3.6.1.4.1.25053.2.2.1.1
Severity	Minor
Status	current
Objects	ruckusZDEventSerial
	ruckusZDEventNEID
	ruckusZDEventSeverity
	ruckusZDEventType
	ruckusZDEventTime
	ruckusZDEventStatus
	ruckusZDEventTitle
	ruckusZDEventAPMacAddr
Description	Trigger when there is an AP join event. The AP's MAC address is enclosed.
Recommended Actions	None

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 17.

Claim 8	
<p>a data store storing data relating to a procedure for managing the at least one operational parameter of the network entity;</p>	<p>The Ruckus system utilizes a data store (e.g., memory) storing data relating to a procedure for managing the at least one operational parameter of the network (for example, data stored in the form of MIBs).</p> <div data-bbox="483 525 1733 733"><h3>ZoneDirector System MIBs Overview</h3><p>The objects contained in the RUCKUS-ZD-SYSTEM-MIB.txt group provide <u>system information and statistics such as system name, software version, AP licenses, CPU and memory utilization, IP addressing, system services running and other system information.</u></p><p>The following tables list the objects within each top-level MIB tree in the RUCKUS-ZD-SYSTEM-MIB.txt file.</p></div> <p>Source: ZoneDirector 10.2 SNMP Reference Guide, p. 65.</p>

Claim 8

a data store storing data relating to a procedure for managing the at least one operational parameter of the network entity;

The ZoneDirector utilizes a data store (e.g., memory) storing data relating to a procedure for managing the at least one operational parameter of the network (for example, in the form of MIBs). As an example, the excerpt below shows MIBs stored in the data store.

TABLE 144 Expanded System Info MIB Tree

MIB Tree	Node Name	OID	Description
ruckusZDSysExplnfo	ruckusZDSysNEId	1.3.6.1.4.1.25053.1.2.1.1.1.5.50	NE ID
	ruckusZDSysManufacturer	1.3.6.1.4.1.25053.1.2.1.1.1.5.51	Manufacturer
	ruckusZDSysSoftwareName	1.3.6.1.4.1.25053.1.2.1.1.1.5.52	Software name
	ruckusZDSysCPUUtil	1.3.6.1.4.1.25053.1.2.1.1.1.5.58	CPU utilization
	ruckusZDSysMemoryUtil	1.3.6.1.4.1.25053.1.2.1.1.1.5.59	Memory utilization
	ruckusZDSysMemorySize	1.3.6.1.4.1.25053.1.2.1.1.1.5.60	Memory size
	ruckusZDSysFlashFreeSize	1.3.6.1.4.1.25053.1.2.1.1.1.5.65	Flash free size
	ruckusZDSysMgmVlanID	1.3.6.1.4.1.25053.1.2.1.1.1.5.67	Management VLAN ID
	ruckusZDSysCPUModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.70	CPU model
	ruckusZDSysmtCPUSpeed	1.3.6.1.4.1.25053.1.2.1.1.1.5.71	CPU speed
	ruckusZDSysmtFlashModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.72	Flash model
	ruckusZDSysmtMemModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.73	Memory model
	ruckusZDSysStartTime	1.3.6.1.4.1.25053.1.2.1.1.1.5.74	System startup time
	ruckusZDSysCurrentTime	1.3.6.1.4.1.25053.1.2.1.1.1.5.80	System current time
	ruckusZDSysAPFirmwareServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.81	AP firmware download server
	ruckusZDSysAPConfigServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.82	AP configuration server
	ruckusZDSysIDSAAllowedESSID	1.3.6.1.4.1.25053.1.2.1.1.1.5.85	Allowed ESSIDs
	ruckusZDSysIDSAAllowBSSID	1.3.6.1.4.1.25053.1.2.1.1.1.5.86	Allowed BSSIDs
	ruckusZDSysIDSAAllowOUI	1.3.6.1.4.1.25053.1.2.1.1.1.5.87	Allowed OUIs
	ruckusZDSysBandwidthUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.90	Number of system bandwidth utilization percent.
	ruckusZDSysDropPacketRateValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.91	Number of system drop packets rate percent.
	ruckusZDSysCPUUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.92	CPU utilization
	ruckusZDSysMemUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.95	Memory utilization
	ruckusZDSysOnlineStaValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.96	Online stations
	ruckusZDSysLocationLongitude	1.3.6.1.4.1.25053.1.2.1.1.1.5.97	AC longitude
	ruckusZDSysLocationLatitude	1.3.6.1.4.1.25053.1.2.1.1.1.5.98	AC latitude
	ruckusZDSysDHCPsServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.110	DHCP server enabled or disabled
	ruckusZDAPCPUvalve	1.3.6.1.4.1.25053.1.2.1.1.1.5.120	AP's CPU utilization value for sending trap
	ruckusZDAPMemoryvalve	1.3.6.1.4.1.25053.1.2.1.1.1.5.121	AP's Memory utilization value for sending trap
	ruckusZDHeartBeatStatus	1.3.6.1.4.1.25053.1.2.1.1.1.5.122	Current heartbeat on-off status

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 66.

Claim 8	
<p>a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and</p>	<p>The Ruckus system utilizes a web server (e.g. a server hosting the software used for the web interface) that provides an interactive environment (e.g. the web interface presented to a user through a web browser) to manage the at least one operational parameter of the network entity (e.g., enabling/disabling an SNMP trap or configuring other SNMP-related settings). For example, the excerpt below shows that the Ruckus ZoneDirector controllers include a web server.</p> <div data-bbox="523 658 1779 1065" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Basic installation instructions are included in the <i>Quick Start Guide</i> that shipped with your ZoneDirector. The steps are summarized below:</p> <ol style="list-style-type: none"> 1. Connect and discover ZoneDirector using UPnP (Universal Plug and Play). On Windows clients, you may need to turn on network discovery in the Network and Sharing Center > Advanced Sharing Settings. <p style="text-align: center;">NOTE Beginning in ZoneDirector 10.2, you can also perform the same Setup Wizard steps using a CLI Wizard. Refer to the <i>ZoneDirector 10.2 Command Line Interface Reference Guide</i> for more information.</p> <ol style="list-style-type: none"> 2. Double-click the ZoneDirector icon when UPnP displays it, or 3. Point your web browser to ZoneDirector's IP address (default: 192.168.0.2). 4. Run the Setup Wizard to create an internal and (optionally) a guest WLAN. </div> <p>Source: ZoneDirector 10.2 SNMP Reference Guide, p. 21.</p>

Claim 8

a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and

As an example, the Web server provides the interactive environment shown below to manage the at least one operational parameter of the network entity.

The screenshot displays the Ruckus ZoneDirector web interface. The top navigation bar includes the Ruckus logo, the title "ZoneDirector - ruckus", and a status bar showing the date and time "2015/06/25 20:27:21" along with links for "Help", "Toolbox", and "Log Out (admin)". Below the navigation bar, there are tabs for "Dashboard", "Monitor", "Configure", and "Administer", with "Configure" being the active tab.

The left sidebar contains a list of system components: System, WLANs, Access Points, Access Control, Maps, Roles, Users, Guest Access, Hotspot Services, Hotspot 2.0 Services, Mesh, AAA Servers, DHCP Relay, Alarm Settings, Services, WIPS, and Certificate. The "WLANs" component is selected.

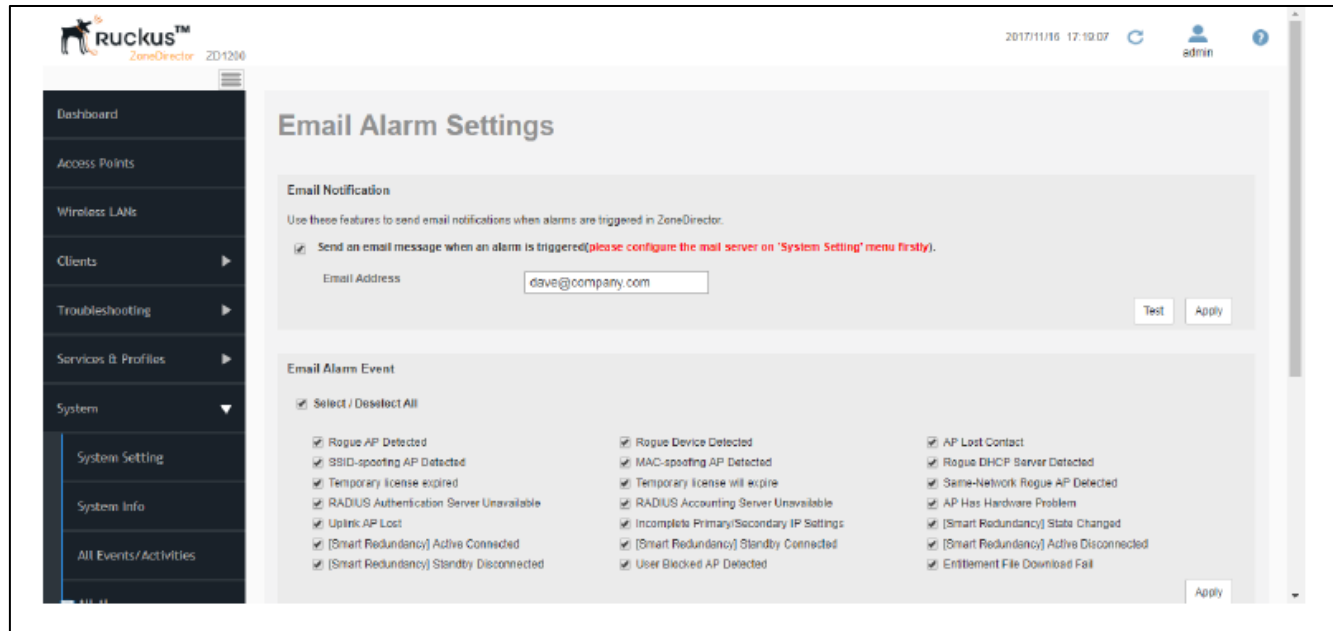
The main content area is titled "WLANs" and contains the following sections:

- WLANs**: A table listing current WLANs with columns for Name, ESSID, Description, Authentication, Encryption, and Actions. It includes a "Create New" link and a search bar. Below the table, there are radio buttons to "Include all terms" (selected) or "Include any of these terms".
- WLAN Groups**: A table listing current WLAN groups with columns for Name, Description, and Actions. It includes a "Create New" link and a search bar. Below the table, there are radio buttons to "Include all terms" (selected) or "Include any of these terms".
- Zero-IT Activation**: A section explaining that Zero-IT Activation simplifies the configuration of users' wireless settings. It instructs users to connect their wireless devices to either a wired network or a dedicated activation WLAN/SSID, and then have them go to the Activation URL shown below. The Activation URL is "http://zddemo.ruckuswireless.com/activate". There is a dropdown menu for "Authentication Server" and an "Apply" button.
- Dynamic PSK**: A section explaining that to provide maximum security, each user is assigned a unique pre-shared key (PSK) when they activate their wireless access. It instructs users to set when the PSK should expire, at which time users will be prompted to reactivate their wireless access. The "PSK Expiration" is set to "Unlimited" with a dropdown menu.

Claim 8

a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and

The excerpt below shows yet another example interactive environment to manage the at least one operational parameter of the network entity.



Source: ZoneDirector 10.2 User Guide, p. 17.

Claim 8

a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and

The Web-server, via the web interface, provides an interactive environment (e.g., input boxes, check boxes, buttons, drop-down menus, etc.) to manage at least one operational parameter (e.g., SNMP-related settings, such as enabling SNMP traps, configuring SNMP settings, and enabling SNMP notifications, as shown in the excerpts below) of the network entity.

Introduction

This *Reference Guide* provides information on the Ruckus Wireless ZoneDirector Simple Network Management Protocol (SNMP) Management Information Base objects (MIBs) that ZoneDirector supports.

NOTE

For information on how to enable SNMP trap delivery and configure other SNMP settings using the ZoneDirector web interface, refer to the *ZoneDirector User Guide*.

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the Ruckus Networks support site:

<https://support.ruckuswireless.com/documents>.

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 13.

The screenshot displays the 'SNMPv2 Agent' configuration page in the ZoneDirector web interface. The page includes a 'Password' field with an 'Apply' button. Below this, the 'SNMPv2 Agent' section is active, with the 'Enable SNMP Agent' checkbox checked. The 'System Contact' is set to 'https://support.ruckuswireless.com', and the 'System Location' is '350 West Java Dr. Sunnyvale'. The 'SNMP RO community' is 'public' and the 'SNMP RW community' is 'private'. An 'Apply' button is at the bottom right of this section. The 'SNMPv3 Agent' section is also visible but has the 'Enable SNMPv3 Agent' checkbox unchecked. Below this, there are fields for 'Privilege', 'User', 'Authentication' (set to 'MD5'), 'Auth Pass Phrase', 'Privacy' (set to 'DES'), and 'Privacy Phrase'.

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 295

Claim 8	
<p>an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,</p>	<p>The Ruckus systems utilize an interface that communicates values of the at least one operation parameter between the Web server (e.g., the server hosting the web interface) and the intelligent agent (e.g., the SNMP agent) with a predetermined data structure (e.g. data structures utilized in an SNMP management system such as MIBs).</p> <div data-bbox="492 471 1781 1110" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <h3 style="color: #e67e22;">Overview of ZoneDirector</h3> <p>Ruckus Networks ZoneDirector serves as a central control system for Ruckus Wi-Fi Access Points (APs). ZoneDirector provides unified AP configuration and updates, wireless LAN security control, RF management, and automatic coordination of Ethernet-connected and mesh-connected APs.</p> <p>Using ZoneDirector in combination with Ruckus APs allows deployment of a Smart Mesh network, to extend wireless coverage throughout a location without having to physically connect each AP to Ethernet.</p> <p>In a Smart Mesh network, the APs form a wireless mesh topology to route client traffic between any member of the mesh and the wired network. Meshing significantly reduces the cost and time requirements of deploying an enterprise-class wireless LAN (WLAN), in addition to providing much greater flexibility in AP placement.</p> <p>ZoneDirector also integrates network monitoring, sophisticated user access controls, Wi-Fi performance diagnostic tools, highly configurable guest access features and advanced security features within a single system.</p> <p>User authentication can be accomplished using an internal user database, or forwarded to an external Authentication, Authorization and Accounting (AAA) server such as RADIUS or Active Directory. Once users are authenticated, client traffic is not required to pass through ZoneDirector, thereby eliminating bottlenecks when higher speed Wi-Fi technologies - such as 802.11ac - are used.</p> <p><u>This user guide provides complete instructions for using the ZoneDirector web-based user interface. With the web interface, you can customize and manage all aspects of ZoneDirector and your Ruckus Networks Wi-Fi deployment.</u></p> </div> <p>Source: ZoneDirector 10.2 User Guide, p. 17.</p>

Claim 8	
<p>an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,</p>	<p>The Ruckus systems utilize an interface (e.g. an interface coupling the web server to the intelligent agent) that communicates values of the at least one operation parameter (e.g., value related to SNMP MIBS such as SNMP enablement, SNMP trap enable, other SNMP settings, etc.) between the Web server (e.g., the server hosting the web interface) and the intelligent agent (e.g., the SNMP agent) with a predetermined data structure (e.g. data structures utilized in an SNMP management system such as MIBs).</p> <div data-bbox="508 486 1756 892" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Introduction</p> <p>This <i>Reference Guide</i> provides information on the Ruckus Wireless ZoneDirector Simple Network Management Protocol (SNMP) Management Information Base objects (MIBs) that ZoneDirector supports.</p> <p>NOTE For information on how to <u>enable SNMP trap delivery and configure other SNMP settings using the ZoneDirector web interface</u>, refer to the <i>ZoneDirector User Guide</i>.</p> <p>Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the Ruckus Networks support site: https://support.ruckuswireless.com/documents.</p> </div> <p>Source: ZoneDirector 10.2 SNMP Reference Guide, p. 13.</p>

Claim 8

an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,

The Ruckus systems utilize a predetermined data structure (e.g., MIB structure) for communicating values of at least one operational parameter between the Web server and the intelligent agent.

Standard MIBs

• Standard MIBs That ZoneDirector Supports..... 15

Standard MIBs That ZoneDirector Supports

ZoneDirector supports standard SNMPv2 MIB objects as defined in RFC 1213.

The following table lists the SNMP standard MIBs that ZoneDirector supports:

Name	OID
system	1.3.6.1.2.1.1
interfaces	1.3.6.1.2.1.2
ip	1.3.6.1.2.1.4
ipAddrTable	1.3.6.1.2.1.4.20
ipRouteTable	1.3.6.1.2.1.4.21
ipForward	1.3.6.1.2.1.4.24
ipv6IpForwarding	1.3.6.1.2.1.4.25
icmp	1.3.6.1.2.1.5
tcp	1.3.6.1.2.1.6
udp	1.3.6.1.2.1.7
snmp	1.3.6.1.2.1.11

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 15.

Claim 8

an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,

Below is a further example of the intelligent agent interacting with the network entity in accordance with a MIB data structure.

Event MIBs Overview

This section describes ZoneDirector and AP events and traps that are triggered when an event occurs, along with possible causes for the event and recommended actions to take (if any).

The MIBs described in this section are contained in the RUCKUS-ZD-EVENT-MIB.txt file. This section is divided into the following subsections:

- [ZoneDirector Event MIB Group](#) on page 17
- [Ruckus ZD Event Objects](#) on page 42
- [AP and Client Event MIB Group](#) on page 46
- [ZD Event Trap Switch Commands](#) on page 48

ZoneDirector Event MIB Group

The ruckusZDEventTraps MIB tree contains events that trigger SNMP traps to be delivered to an SNMP receiver.

ruckusZDEventAPJoinTrap

TABLE 2 ruckusZDEventAPJoinTrap

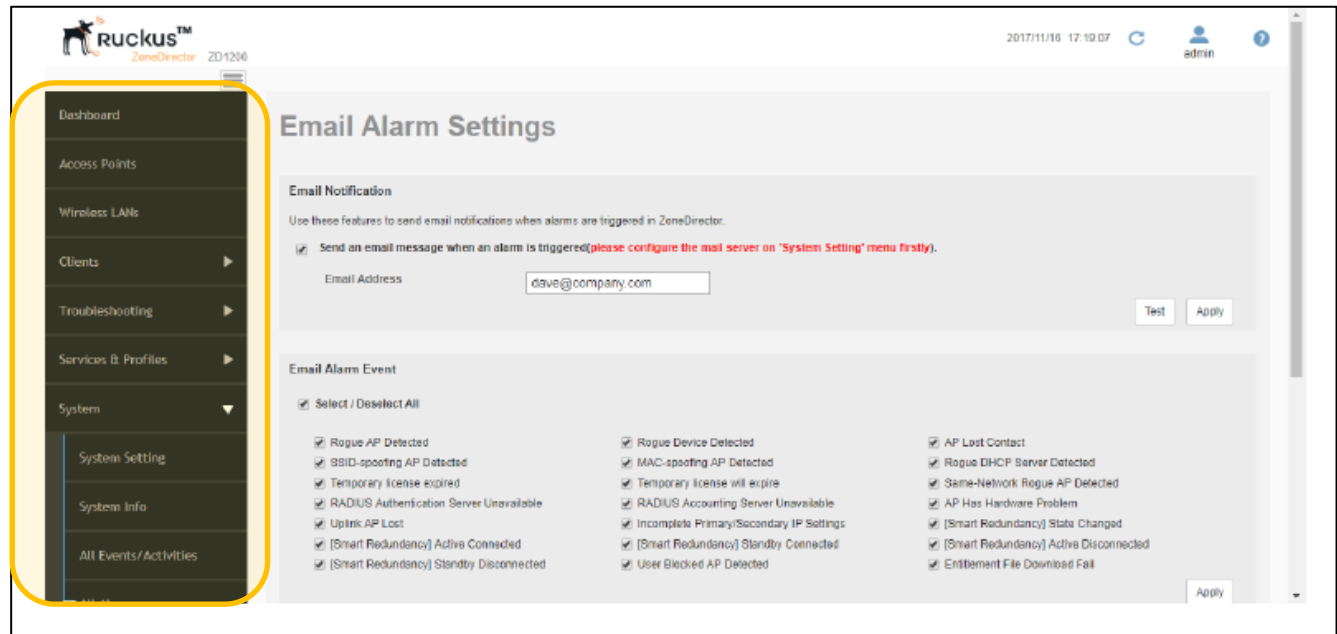
Name	ruckusZDEventAPJoinTrap
OID	1.3.6.1.4.1.25053.2.2.1.1
Severity	Minor
Status	current
Objects	ruckusZDEventSerial
	ruckusZDEventNEID
	ruckusZDEventSeverity
	ruckusZDEventType
	ruckusZDEventTime
	ruckusZDEventStatus
	ruckusZDEventTitle
	ruckusZDEventAPMacAddr
Description	Trigger when there is an AP join event. The AP's MAC address is enclosed.
Recommended Actions	None

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 17.

Claim 8

wherein the Web server provides the interactive environment using the Web pages generated by a Web page generator, the Web page generator generating a set of linked Web pages in response to a request to carry out a procedure, wherein each Web page of the set of linked Web pages being based upon the data stored in the data store and corresponding to at least one step in the procedure to manage the at least one operational parameter of the network entity, and

The Ruckus systems utilize a web server (e.g. the server that host the web interface) which provides the interactive environment using web pages (e.g. the user interface is presented via a web browser using web pages) generated by a web page generator.

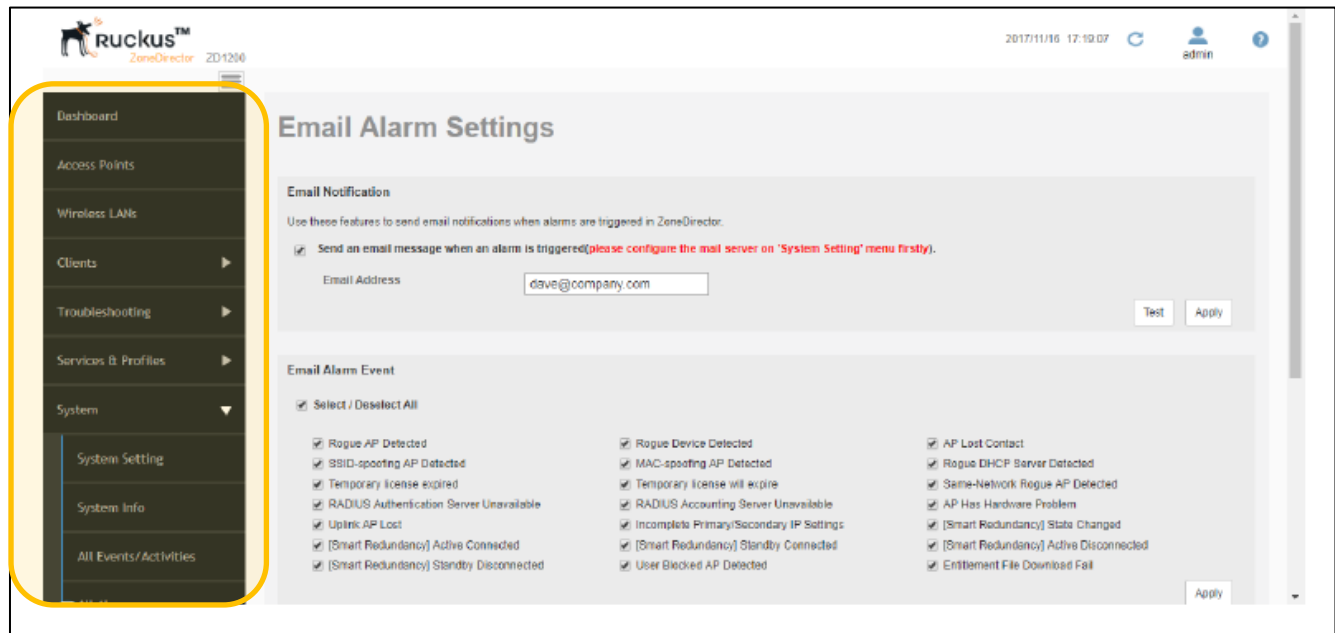


Source: ZoneDirector 10.2 User Guide, p. 17.

Claim 8

wherein the Web server provides the interactive environment using the Web pages generated by a Web page generator, the Web page generator generating a set of linked Web pages in response to a request to carry out a procedure, wherein each Web page of the set of linked Web pages being based upon the data stored in the data store and corresponding to at least one step in the procedure to manage the at least one operational parameter of the network entity, and

The web page generator generates a set of linked webpages (e.g. the web pages to be sent to a user's browser) in response to a request to carry out a procedure (e.g. a user's request to obtain data or manage/configure a device). Each web page of the set of linked web pages is based upon data stored in the data store (e.g. menu's and configuration data displayed in the interface for a particular device will be based on device data stored in a data store such as an MIB) and corresponds to at least one step in the procedure to manage the at least one operation parameter of the network entity (e.g. the webpage is tied to management or configuration functions).



Source: ZoneDirector 10.2 User Guide, p. 17.

Claim 8

wherein the interface uses the stored data relating to the procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether values to be communicated to the intelligent agent from the Web server conform to a rule relating to the procedure for managing the at least one operational parameter of the network entity, and

The interface uses the stored data (e.g. data in a MIB) relating to the procedure for managing the at least one operation parameter of the network entity (e.g. configuring or initiating an SNMP based command) to generate a determination result indicating whether values to be communicated to the intelligent agent to the Web server conform to a rule relating to the procedure for managing the at least one operation parameter or the network entity. For example, when the information does not conform to a rule, the web interface may display an error message or generate an error routine.

Enabling the Built-in DHCP server

Ruckus recommends that you only enable the built-in DHCP server if there are no other DHCP servers on the network.

ZoneDirector's internal DHCP server can service only a single subnet (the one it's in) and not other VLANs that may be associated with client WLANs. If you enable the built-in DHCP server, Ruckus also recommends enabling the rogue DHCP server detector. For more information, refer to [Rogue DHCP Server Detection](#) on page 250.

1. Go to **System > System Settings**.
2. In the **DHCP Server** section, select the **Enable DHCP Server** check box.
3. In **Starting IP**, type the first IP address that the built-in DHCP server will allocate to DHCP clients. The starting IP address must be on the same subnet as the IP address assigned to ZoneDirector. If the value that you typed is invalid, an error message appears and prompts you to let ZoneDirector automatically correct the value. Click **OK** to automatically correct the entry.
4. In **Number of IPs**, type the maximum number of IP addresses that you want to allocate to requesting clients. The built-in DHCP server can allocate up to 512 IP addresses including the one assigned to ZoneDirector. The default value is 200.
5. In **Lease Time**, select a time period for which IP addresses will be allocated to DHCP clients. Options range from six hours to two weeks (default is one week).
6. If your APs are on different subnets from ZoneDirector, click the check box next to **DHCP Option 43** to enable Layer 3 discovery of ZoneDirector by the APs.
7. Click **Apply**. If you typed an invalid value in any of the text boxes, an error message appears and prompts you to let ZoneDirector automatically correct the value. Click **OK** to change it to a correct value.

FIGURE 201 The DHCP Server options

The screenshot shows the 'DHCP Server' configuration page in the ZoneDirector 10.2 web interface. At the top, there's a 'Shared Secret' field and a 'Management IP Address' field set to 'Disabled'. Below this is the 'DHCP Server' section with a note: 'If a DHCP server does not exist on your network, you can enable this function to provide DHCP service to clients.' There are three main configuration options: 'Enable DHCP server' (checked), 'Starting IP' (192.168.0.9), and 'Number of IPs' (200). The 'Lease Time' is set to 'One week'. There is also a checkbox for 'DHCP Option 43' (Layer 3 discovery protocol for AP to find ZoneDirector) which is checked. At the bottom, there's a 'Management Access Control' section with a table for IP addresses allowed access to the ZoneDirector. The table has columns for 'Name', 'IP address', and 'Actions'. There are 'Create New' and 'Delete' buttons at the bottom of the table.

Source: ZoneDirector 10.2 User Guide, p. 275.

Claim 8

wherein the interface uses the stored data relating to the procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether values to be communicated to the intelligent agent from the Web server conform to a rule relating to the procedure for managing the at least one operational parameter of the network entity, and

As discussed, the Ruckus systems utilize MIBs, such as the ZoneDirector System MIB of enabling a ZoneDirector DHCP server.

ZoneDirector System MIBs
Expanded System Info MIBs

TABLE 144 Expanded System Info MIB Tree

MIB Tree	Node Name	OID	Description
ruckusZDSysInfo	ruckusZDSysNEID	1.3.6.1.4.1.25053.1.2.1.1.1.5.50	NE ID
	ruckusZDSysManufacturer	1.3.6.1.4.1.25053.1.2.1.1.1.5.51	Manufacturer
	ruckusZDSysSoftwareName	1.3.6.1.4.1.25053.1.2.1.1.1.5.52	Software name
	ruckusZDSysCPUUtil	1.3.6.1.4.1.25053.1.2.1.1.1.5.58	CPU utilization
	ruckusZDSysMemoryUtil	1.3.6.1.4.1.25053.1.2.1.1.1.5.59	Memory utilization
	ruckusZDSysMemorySize	1.3.6.1.4.1.25053.1.2.1.1.1.5.60	Memory size
	ruckusZDSysFlashFreeSize	1.3.6.1.4.1.25053.1.2.1.1.1.5.65	Flash free size
	ruckusZDSysMgmtVlanID	1.3.6.1.4.1.25053.1.2.1.1.1.5.67	Management VLAN ID
	ruckusZDSysCPUModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.70	CPU model
	ruckusZDSysCPUSpeed	1.3.6.1.4.1.25053.1.2.1.1.1.5.71	CPU speed
	ruckusZDSysFlashModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.72	Flash model
	ruckusZDSysMemModel	1.3.6.1.4.1.25053.1.2.1.1.1.5.73	Memory model
	ruckusZDSysStartTime	1.3.6.1.4.1.25053.1.2.1.1.1.5.74	System startup time
	ruckusZDSysCurrentTime	1.3.6.1.4.1.25053.1.2.1.1.1.5.80	System current time
	ruckusZDSysAPFirmwareServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.81	AP firmware download server
	ruckusZDSysAPConfigServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.82	AP configuration server
	ruckusZDSysIDSAAllowedESSID	1.3.6.1.4.1.25053.1.2.1.1.1.5.85	Allowed ESSIDs
	ruckusZDSysIDSAAllowBSSID	1.3.6.1.4.1.25053.1.2.1.1.1.5.86	Allowed BSSIDs
	ruckusZDSysIDSAAllowOUI	1.3.6.1.4.1.25053.1.2.1.1.1.5.87	Allowed OUIs
	ruckusZDSysBandwidthUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.90	Number of system bandwidth utilization percent.
	ruckusZDSysDropPacketRateValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.91	Number of system drop packets rate percent.
	ruckusZDSysCPUUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.92	CPU utilization
	ruckusZDSysMemUtilValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.95	Memory utilization
	ruckusZDSysOnlineStaValve	1.3.6.1.4.1.25053.1.2.1.1.1.5.96	Online stations
	ruckusZDSysLocationLongitude	1.3.6.1.4.1.25053.1.2.1.1.1.5.97	AC longitude
	ruckusZDSysLocationLatitude	1.3.6.1.4.1.25053.1.2.1.1.1.5.98	AC latitude
	ruckusZDSysDHCPServer	1.3.6.1.4.1.25053.1.2.1.1.1.5.110	DHCP server enabled or disabled

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 66.

Claim 8	
<p>wherein the interface uses the stored data relating to the procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether values to be communicated to the intelligent agent from the Web server conform to a rule relating to the procedure for managing the at least one operational parameter of the network entity, and</p>	<p>The excerpt below shows another example of rules relating to a procedure for managing the at least one operational parameter of the network entity. The excerpt further shows the interface using the stored data to generate a determination result.</p> <div data-bbox="490 458 1785 922" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>General Options</p> <ul style="list-style-type: none"> • Name/ESSID: Type a short name for this WLAN. The SSID must contain between 1 and 32 characters. Allowable characters include printable ASCII characters from space (char 32) to ~ (char 126). A space can be used in the name, but the name cannot begin or end with a space character. If a space is included at the beginning or end of the ESSID, it will be automatically removed. If a disallowed ASCII character (not within the range 32-126) is included, an error message will appear. <ul style="list-style-type: none"> - In general, the WLAN name is the same as the advertised SSID (the name of the wireless network as displayed in the client's wireless configuration program). However, you can also separate the ESSID from the WLAN name by entering a name for the WLAN in the first field, and a broadcast SSID in the second field. In this way, you can advertise the same SSID in multiple locations (controlled by the same ZoneDirector) while still being able to manage the different WLANs independently. Each WLAN "name" must be unique within ZoneDirector, while the broadcast SSID can be the same for multiple WLANs. • Description: Enter a brief description of the qualifications/purpose for this WLAN, e.g., "Engineering" or "Voice." </div> <p>Source: ZoneDirector 10.2 User Guide, p. 68.</p>

Claim 8

wherein the interface uses the stored data relating to the procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether values to be communicated to the intelligent agent from the Web server conform to a rule relating to the procedure for managing the at least one operational parameter of the network entity, and

As another example when the information does not conform to a rule, an error may be triggered.

ruckusEventSetErrorTrap

TABLE 78 ruckusEventSetErrorTrap

Name	ruckusEventSetErrorTrap
OID	1.3.6.1.4.1.25053.2.1.1.3
Severity	Minor
Status	current
Objects	1: ruckusSetErrorOID
Description	Trigger when there is an snmp-set error event. The OID of the snmp-set is enclosed.
Recommended Action	None.

Source: ZoneDirector 10.2 SNMP Reference Guide, p. 47.

Claim 8

wherein the interface communicates values from the Web server to the intelligent agent in response to the determination result indicating conformance.

The interface communicates values (e.g., values associated with enabling/disabling an SNMP trap or configuring alarm, email address, or other SNMP-related settings) from the Web server to the intelligent agent (e.g., the SNMP agent) indicating conformance (e.g. after confirming that any user input conforms to any rules, the data inputted will be communicated to an SNMP agent on the device for further processing). If the information has been entered correctly (i.e. “in conformance”), an error message may not appear, allowing communication of the values.

Ruckus™ ZoneDirector 10.2

2017/11/16 17:19:07 admin

Email Alarm Settings

Email Notification

Use these features to send email notifications when alarms are triggered in ZoneDirector.

☒ Send an email message when an alarm is triggered (please configure the mail server on 'System Setting' menu firstly).

Email Address:

Test Apply

Email Alarm Event

☒ Select / Deselect All

<input checked="" type="checkbox"/> Rogue AP Detected	<input checked="" type="checkbox"/> Rogue Device Detected	<input checked="" type="checkbox"/> AP Lost Contact
<input checked="" type="checkbox"/> BBID-spoofing AP Detected	<input checked="" type="checkbox"/> MAC-spoofing AP Detected	<input checked="" type="checkbox"/> Rogue DHCP Server Detected
<input checked="" type="checkbox"/> Temporary license expired	<input checked="" type="checkbox"/> Temporary license will expire	<input checked="" type="checkbox"/> Same-Network Rogue AP Detected
<input checked="" type="checkbox"/> RADIUS Authentication Server Unavailable	<input checked="" type="checkbox"/> RADIUS Accounting Server Unavailable	<input checked="" type="checkbox"/> AP Has Hardware Problem
<input checked="" type="checkbox"/> Uplink AP Lost	<input checked="" type="checkbox"/> Incomplete Primary/Secondary IP Settings	<input checked="" type="checkbox"/> [Smart Redundancy] Slot Changed
<input checked="" type="checkbox"/> [Smart Redundancy] Active Connected	<input checked="" type="checkbox"/> [Smart Redundancy] Standby Connected	<input checked="" type="checkbox"/> [Smart Redundancy] Active Disconnected
<input checked="" type="checkbox"/> [Smart Redundancy] Standby Disconnected	<input checked="" type="checkbox"/> User Blocked AP Detected	<input checked="" type="checkbox"/> Entitlement File Download Fail

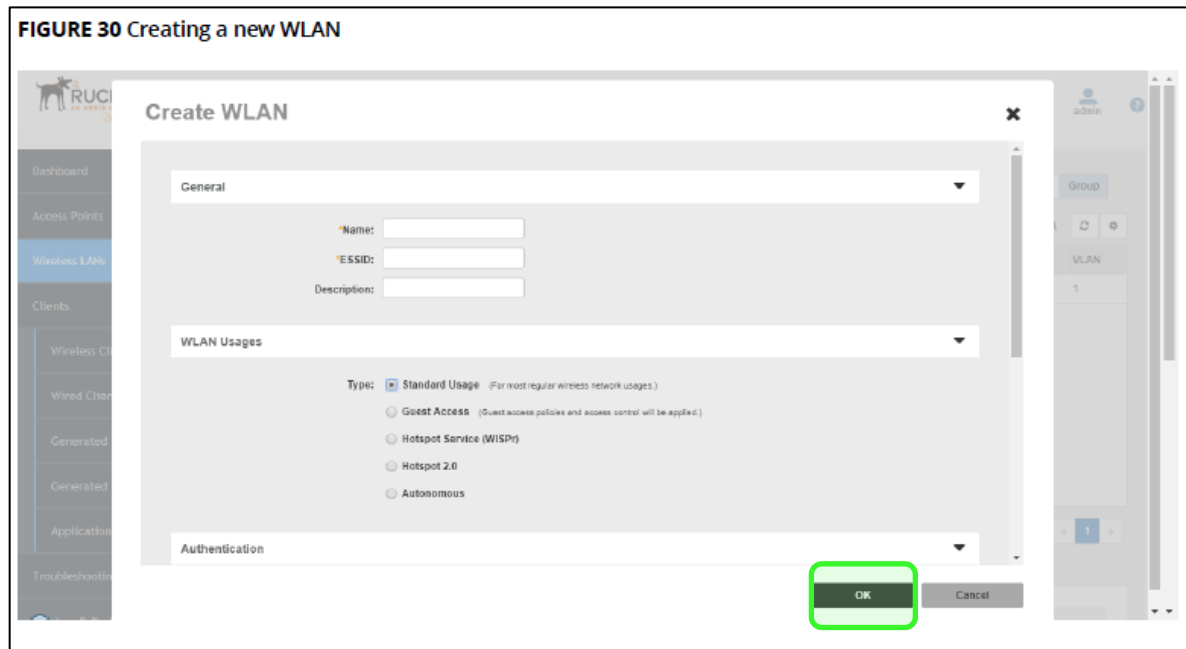
Apply

Source: ZoneDirector 10.2 User Guide, p. 17.

Claim 8

wherein the interface communicates values from the Web server to the intelligent agent in response to the determination result indicating conformance.

Below is another example of communicating values from the Web server to the intelligent agent in response to the determination result indicating conformance (e.g., no error message appearing and/or "OK" button enabled).



Source: ZoneDirector 10.2 User Guide, p. 17.